Architectural
CONCRETE

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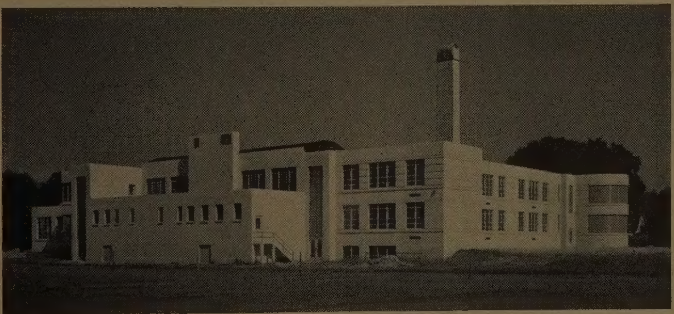
School for Huron, Ohio

By Harold Parker*, AIA

THE new architectural concrete school in the small town of Huron, Ohio, on Lake Erie, was completed early in 943 after passing through enough vicissitudes in planning nd construction occasioned by the war to make its opening memorable occasion for any architect.

Original perspectives for the building were made for buff rick, since school buildings from the beginning of time in is state have been masonry, and there was scant possiility that the citizens of Huron, in replacing an ancient asonry school building, would desire to pioneer in such a odern construction material as concrete. But it so hapened that some influential citizens, including the superinndent of schools and the county superintendent, had seen rchitectural concrete school buildings in nearby states and ere impressed by their fresh appearance and utter differnce from any other schools in Ohio. So it came about that he townspeople, for hom the new school lant with its promised nlarged facilities for ommunity cultural nd social life was a ajor civic event, deermined this school hould be different, nd that it should be rchitectural concrete.



Rear of Huron, Ohio, School. All facades of the building have the same simply molded architectural details.

It was no great task for the architects, familiar with architectural concrete since 1936, to restudy certain details and redesign the building for concrete. The major changes were in the front entrance, which was originally to have stone trim, in the tower which was redesigned to give it more flowing lines and in certain places by the addition of curved walls which are so easily constructed of concrete.

This redesign provided ample evidence of the adaptability of concrete as an architectural medium. In masonry it is necessary to combine units of standard sizes and prefabricated shapes, and there is always some difficulty in getting these standards together in a design that is not static and formal. In concrete the material is molded to order and almost any form or detail is practicable.

In completing plans for this building, the layout of plywood panels for the main facade was all done on the drawing board. In exercising this control of the work to be done in the field the architect adds somewhat to his job but it does much to insure the work being done as he wants it and also adds immeasurably to his satisfaction in the structure.

To conserve space, the gymnasium and

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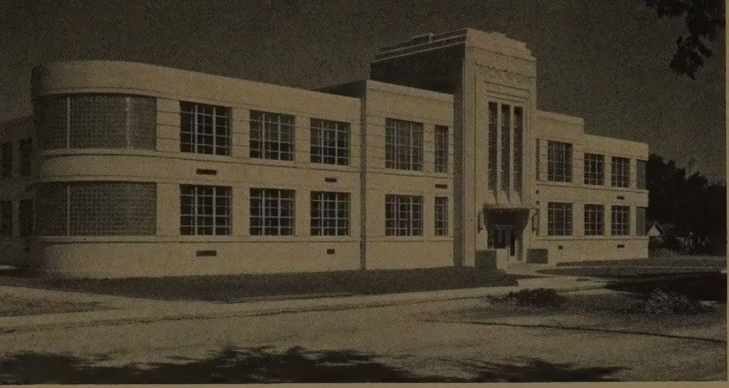
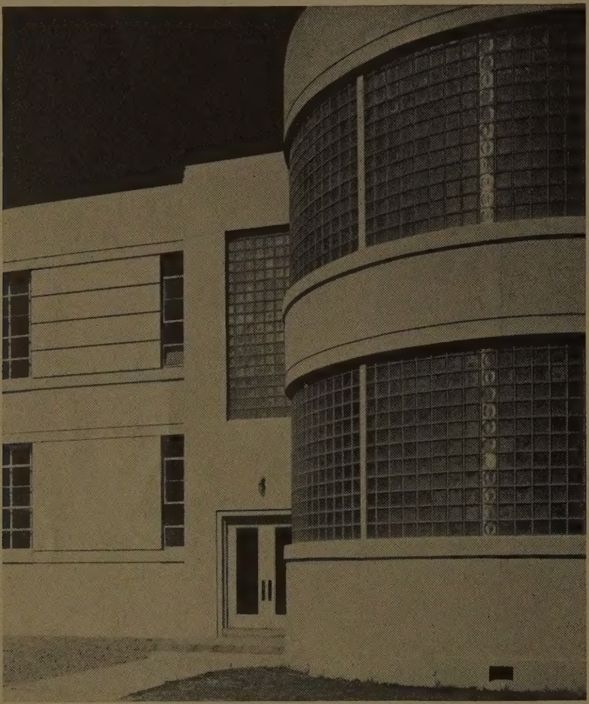
*Harold Parker and C. dward Wolfe, associate rchitects, Sandusky, Ohio.



Huron School was designed by Harold Parker and C. Edward Wolfe, associate architects, of Sandusky, Ohio. R. C. Reese, of Toledo, was structural engineer, and the Juergens Co., Lakewood, Ohio, the contractor.



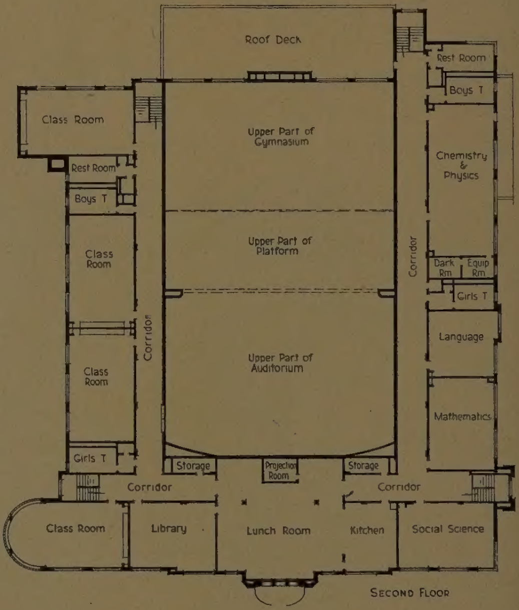
An interesting feature of the construction is the window sills, cast in place after the walls. The sills are separated from the walls by an asphalt bond-break, are continuous over control joints.

auditorium are combined, the gymnasium floor serving as the stage of the auditorium. Huge curtains that slide over the rear of the stage area conceal the larger portion of the gymnasium when the auditorium is used for plays or public meetings.

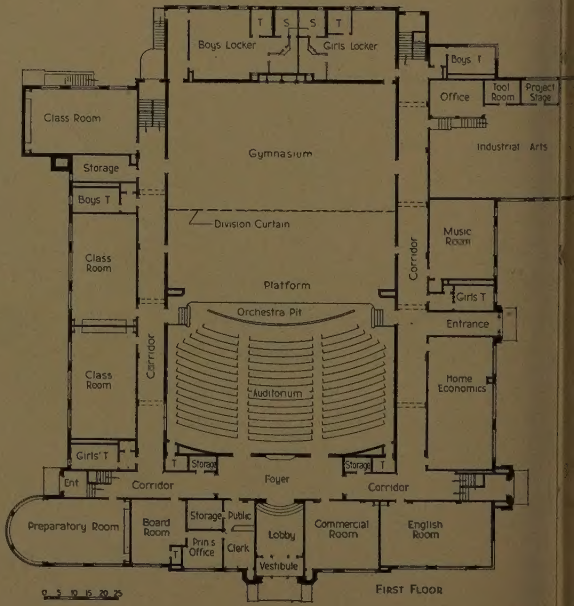
Since the roof of the gymnasium-auditorium has a long span, it was originally intended that steel trusses would be used. But the war changed all this, and the alternative was to construct a series of six reinforced concrete barrel shells over this area. As frequently happens, the alternative proved to be more advantageous than the original roof design. Over the gymnasium area the roof barrels are exposed except for the acoustical lining which was ca with the concrete. Over the auditorium is a suspend ceiling which has a series of coves concealing the source various colored fluorescent lights. It is possible to light t auditorium proper with soft, colored lights or by brillia incandescent illumination, or a combination of both. T walls of the auditorium are finished with acoustic materia Drop lamps over the gymnasium floor provide equal illumination over the entire floor but completely eliminate gla in the eyes of spectators who sit in the elevated auditoriu seats at indoor games.

The building is fairly regular in plan except for the sh portion which extends from the rear right side to provi three-sided natural illumination.

An unusual feature of the building is the window sil which were cast after the walls and were separated fro



SECOND FLOOR



FIRST FLOOR

e walls by an asphalt bond-break. The intention was to event cracking of the sills over the control joints, because was the architects' wish not to carry the control joints through the sills. The sills have not cracked, and this paration by a layer of asphalt seems to be working as ticipated. Control joints are located at frequent but not regular intervals, determined by the architectural design.

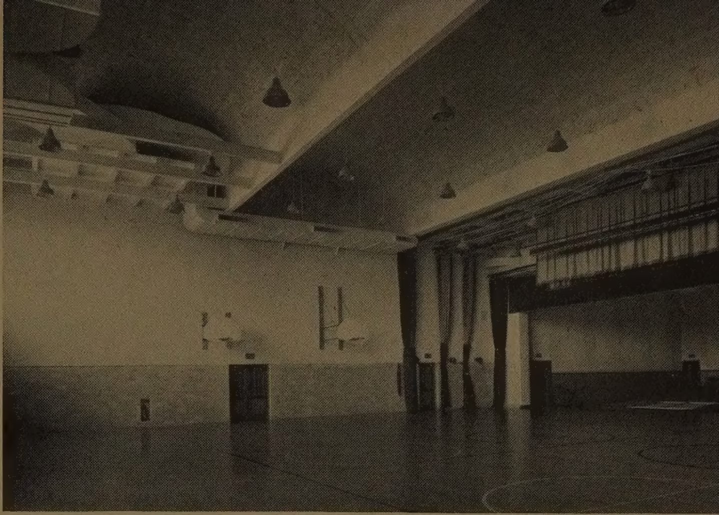
Floors of the building are pan joist construction, finished roughout with rubber tile. Some of the rooms have con-ete masonry partitions which are exposed and painted.

During the construction period, which was unduly long e to the fact that the building was caught by the war and ork was delayed both by difficulty in obtaining materials d labor, Huron citizens might at times have been regret-l of their choice of concrete as a building material for the hool. At various stages of construction, a concrete build-g does not appear very promising to people unacquainted ith forms and freshly stripped and uncleaned walls. And is feeling was not improved by the fact that after the alls were up the building remained without a roof so long at wheat grew luxuriously in the gymnasium. But as the ructure was roofed over and the walls were cleaned and nished with first a white and then an ivory coat of port-nd cement paint, the effectiveness of the building began reveal itself and the townsfolk's enthusiasm returned in eater force than ever.

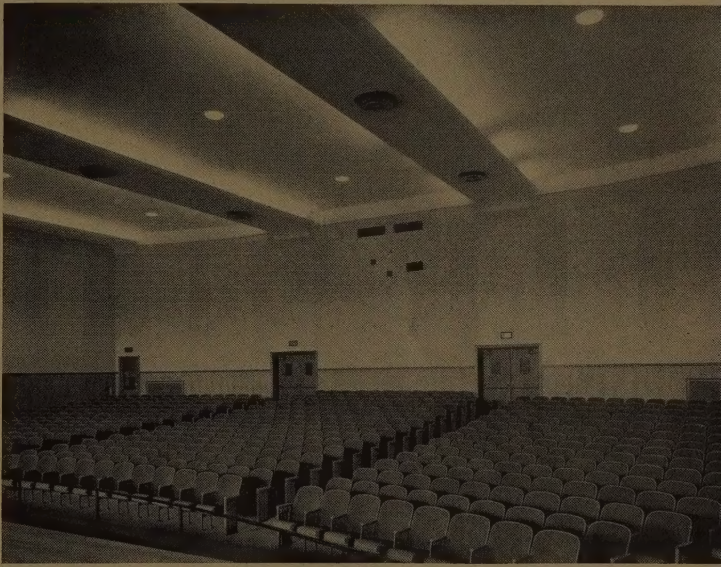
Today this building is the pride of Huron and, as a type school construction, the object of much interest all over e northern part of the state. R. L. McCormick, super-tendent of schools, spent the summer of 1943 showing the uilding to countless visitors.

What cannot help but impress the architect familiar with is medium of architectural expression is the tremendous evelopment made in concrete design and construction chnique within a few years. Today concrete is placed in asonably low lifts, making possible far better placement nd compaction in forms than in the older days when the bjective seemed to be to make the lifts as high as possible. ontrol joints have been developed and proved, form de-iling is much better, and clean-down methods have been perfected that finishing costs are lower than they were ss than a decade ago when the Sandusky, Ohio, stadium as built in 1936 (*see* ARCHITECTURAL CONCRETE, *Vol. 4, o. 1*). While great progress has been made, the full possi-ilities of concrete in architecture have barely been touched. n the years to come this material will provide fascinating pportunities to designers permitted to work freely in it.

R. C. Reese, of Toledo, Ohio, was structural engineer or this project and the Juergens Co., of Lakewood, Ohio, as the contractor.



Gymnasium roof consists of three barrel shells. Insulating material used as the inside form is integral with the arch barrels. Roberts & Schaefer Co., of Chicago, was consulting engineer on design of the gymnasium and auditorium roof.



Over the auditorium the barrel-shell roof is concealed by a suspended ceiling with cove lighting. Various color combinations of fluorescent lighting are controlled from the main switch panel.

In the shop building the partition walls are concrete masonry finished with white portland cement paint.

Architectural Concrete for Huge Oklahoma City Air Depot

By J. Gordon Turnbull*

OKLAHOMA City Air Depot is one of 11 similar installations throughout the nation operated by the Air Service Command. The commanding general of the Air Service Command has named this installation as the model upon which methods and organizational details of other installations will be predicated. The functions of the ASC are many and vitally important to the air war. It furnishes supplies for all army air force planes throughout the world; repairs, overhauls or rebuilds these planes here and overseas; it trains personnel required for supply and maintenance; it prepares all American and lend-lease planes for shipment abroad; and it handles all air freight in this country flown by the Air Transport Command.

A typical main supply depot such as the one at Oklahoma City performs all of these functions and its physical layout consists of such varied structures as repair hangars, engine test and repair buildings, test hangars, equipment repair buildings, radio and instrument repair buildings, paint, dope, oil and grease storage structures, and a huge warehouse. The ASC is one of the world's greatest warehouses, handling some 400,000 separate items as compared with 40,000 usually found in large mail order catalogs.

The Oklahoma City Depot now comprises 375 buildings, constructed at a cost of approximately $35,000,000. Th project was started from scratch on 2,400 acres of rolli prairie outside of the state capital. One of the importa features of the job of creating the depot was to get a essential buildings under construction simultaneously an completed as nearly at the same time as possible so th the entire layout could function efficiently over-all.

Many considerations, therefore, governed the design an choice of materials for the major buildings of the depo At the time of construction, critical shortages in structur steel were developing. Delivery dates of structural shap were indefinite and subject to progressively high prioritie A careful study was made with a view to adopting a buil ing type which would be structurally sound, economica firesafe, rapidly constructed, and most attractive archite turally. Architectural concrete fulfilled all of these requir

Largest structure at Oklahoma City Air Depot is Depot Supply N Sverdrup & Parcel, associated consulting engineers, Cleveland,

Shipping and receiving entrance to depot supply building. All areas adjacent to the building are paved with concrete.

Wings of supply building have long concrete loading platforms to railway sidings.

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*J. Gordon Turnbull and Sverdrup & Parcel, associated consulting engineers, Cleveland, Ohio and St. Louis, Mo.

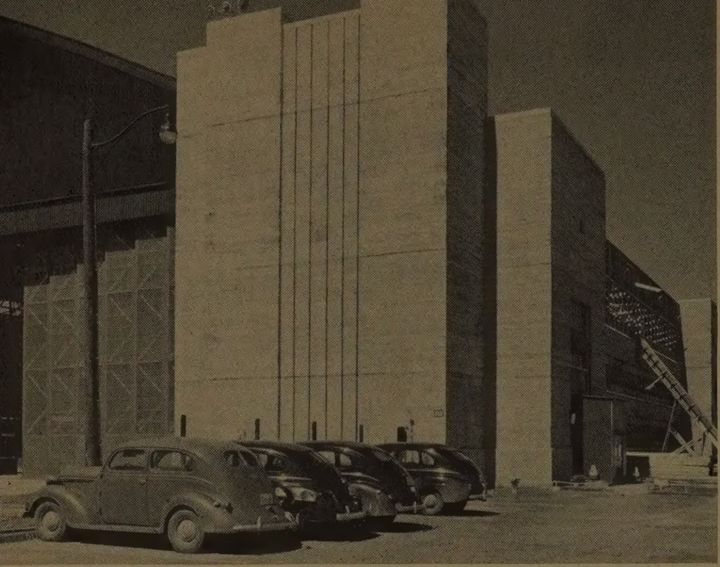
nd stocks about 400,000 separate items, needs huge warehouses like this at its 11 main installations throughout the U.S. J. Gordon Turnbull and
signed the Oklahoma City project. Paul Cret, Philadelphia, was consulting architect, and Dunning-James & Patterson, Oklahoma City, contractors.

ents better than any other material. A very important
vantage of architectural concrete was that the super-
ucture walls could be placed immediately since there
s at that time a plentiful supply of reinforcing bars
ally, thus avoiding any delay waiting for structural steel.
It was necessary to start several buildings simultaneously,
ich required a great amount of labor, but for architec-
al concrete construction most of the labor could be
skilled providing there were a few skilled artisans as
erintendents and foremen. The region abounded in this
e of labor and, with a little instruction and direction,
y proved to be resourceful and intelligent workmen.
tle labor was imported for this phase of the work.

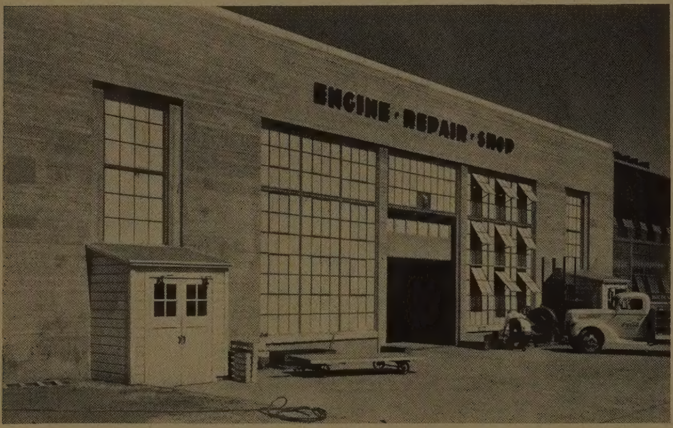
By using reinforced concrete instead of structural steel for columns and floor framing a great saving in steel tonnage was made, and preliminary estimates showing that a saving of 3 to 4 per cent in cost could be effected by using architectural concrete as against other masonry materials proved to be correct.

The design of the buildings and the texture were based on strict economy and a recognition of the scale of the project. As a result, simple, bold masses were adhered to throughout the plant. Board sheathing was selected from the standpoint of economy and appropriateness to the design and mass of the structures. Rubbing of hundreds of thousands of square feet of concrete surfaces would have

gine test building is a series of horizontal cells each separated from adjacent cells by means of expansion joints. The Venturi section in each cell was the
st complicated concrete forming on the project.



The huge airplane repair hangar has great concrete door pockets and concrete side walls. Texture of all exposed concrete surfaces throughout the reservation was produced by rough-sawed form lumber.



Concrete walls of all buildings are generally 10 in. thick. Finish was a simple clean-down after the tie holes were filled with grout and rubbed with mortar-soaked workman's glove.

been expensive and by using a formboard-marked texture the stripping of forms practically completed the operation.

Various kinds of formboards were considered and it was found that No. 2 rough-sawed boards S2E in 6-, 8- and 10-in. widths could be obtained at a 10 per cent saving compared with T&G dressed boards.

Test panels were built to establish the amount of leakage that might be expected through the horizontal joints between formboards. Virtually all leakage could have been prevented by filling the joints with a mixture of portland cement and mutton tallow but the sample walls showed this to be unnecessary for the type of texture desired. In some test walls, the concrete was vibrated internally. In others the forms were vibrated. Spading was also used. All of these methods were studied using concrete with various slumps. Each panel was made of concrete having slumps ranging from 1½ in. to 6 in. each, the concrete of each slump being separated by means of divisions in the form.

Upon removal of the forms from the test walls, it was decided that the one placed with 3- to 3½-in. slump and vibrated internally, would insure the most interesting texture and would work well around the reinforcement. The vibration and small moisture loss at the joints caused just enough separation of the coarse and fine aggregates at these points to accentuate the joint lines and at the same time register the texture of the formboards. Both external and internal corners came out sharp and true.

In the actual formwork, interesting variation was obtained in the walls by laying up the random widths of boards in different combinations in the height of the wall. The same combination of formboards, once established, was maintained around the entire perimeter of each building. In door and window reveals in unimportant elevations the form sheathing was run vertically. Otherwise, the form marking was maintained horizontal into the reveals. Accentuation of feature motifs was obtained by using the formboards vertically.

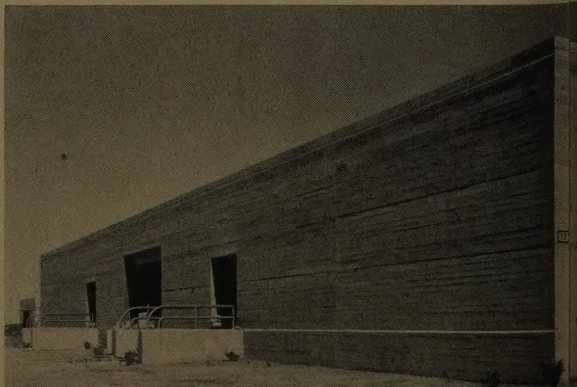
After forms were removed all that remained was to fill in the small holes left by the form ties. Several methods of filling were tried to make these plugged holes invisible, but it was found that the best method was to have the workman make a few indifferent swipes over the filled holes with his coarse cotton, mortar-caked glove, rubbing in the general direction of the prevailing grain. This was a very effective and rapid method which sufficed also where small honeycombs had developed. This method could only be used where rough lumber had been used for sheathing.

Exterior walls, in general, are 10 in. thick with ½-in. round bars spaced 18 in. on centers both horizontal and vertical in each of two curtains.

With the exception of some complicated forming for the Venturi sections of the engine test cells in the test building, all concrete work was studied to make the construction as simple as possible.

Expansion joints were located at approximately 120-ft.

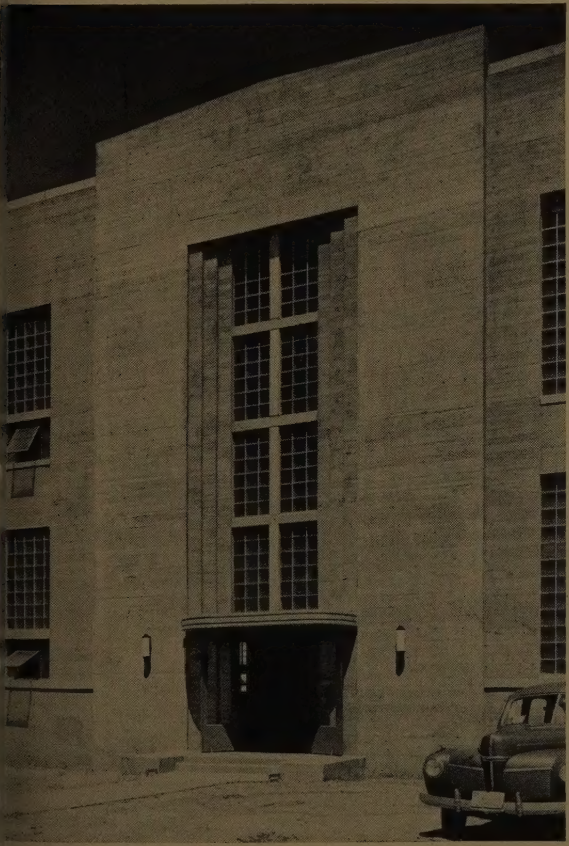
Unbroken except by door openings the walls of the equipment repair building are made interesting by play of light on the board-marked



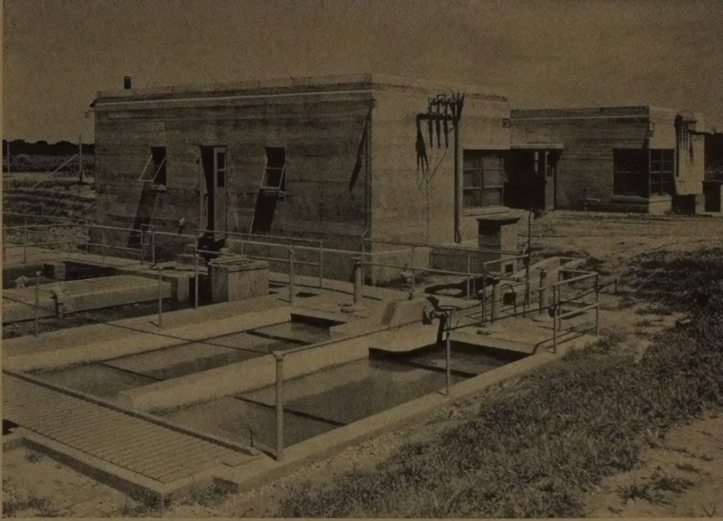
ervals with control joints midway between them. All
lls longer than 80 ft. were provided with either expan-
or control joints.

Vertical expansion joints were kept 1 in. wide and 90
g. to the wall face. Joint filler consisted of balsa wood or
lotex. The outside face of each joint was covered with
gage metal bent into a V, 1 in. deep. Flanges with per-
ated holes formed a bond into the adjoining concrete.
is prefabricated unit was set into the forms and con-
te was placed on both sides of it. All reinforcing bars
re stopped at expansion joints.

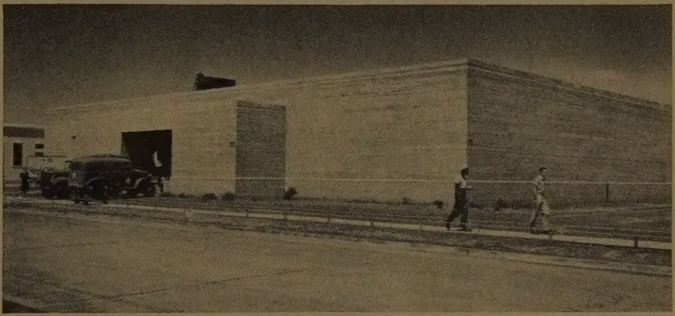
Control joints were constructed by means of V-strips of
od 1½ in. deep, ¼ in. wide at the face and ⅛ in. wide
the inside. Joints were located in each face of the wall,
posite each other, and half of the reinforcement was cut
ough at these points. Upon stripping the forms the wood
strip was removed and the control joint left with no
ing material.



wer plant is a high-walled structure with large glass block illumi-
ting panels. Interest is given to entrance by two-story reveals.



The air depot is a self-sufficient community, having its own modern sewage disposal plant.



Radio repair building is a windowless structure, obtaining architectural interest solely from its mass and texture.

In the engine test building expansion joints were carried
nsversely through the structure. An expansion joint was
ated between adjoining walls of each test cell, thus separating this building into several independent structures. In passing, it may be of interest to note that the insulation board used as a bulkhead when the concrete on one side of the expansion joint was placed, bonded perfectly with the concrete. The fine material and moisture of the concrete penetrated the insulating material to a depth of approximately ¼ in., making the insulation board an integral unit with the wall.

Lifts were kept to approximately 4 ft. in height and concrete was vibrated in 12- to 18-in. layers. This prevented overvibration and reduced the possibility of segregation.

No lift of fresh concrete was allowed to set for more than 30 minutes before the subsequent lift was placed on it. Each succeeding lift was vibrated into the preceding one, thus eliminating cold joints. Horizontal construction joints in long walls were shown on the drawings to be located where ornamental bands, water tables and other devices in the architectural treatment would obscure them. The forms were stopped at the elevation of the construction joints so the surface could be thoroughly cleaned of laitance and roughened before placing the next lift of concrete.

Immediately upon stripping the forms the wall concrete was sprayed with a colorless membrane curing compound.

Batching plants were set up on the site and were used throughout the entire job. Concrete for the foundations was delivered from the batching plant in transit mixers and chuted into place. In no case was the concrete permitted to drop from a height of more than 2 ft.

For placing concrete in the superstructures the transit mixers were equipped with hoists which proved to be a great asset. These combination mixer hoists could lift the concrete to a height of approximately 35 ft. These machines were first used with some misgivings; but they were found to be much more satisfactory and economical than the cranes which they replaced and were needed elsewhere.

Floors on fill were designed for the loads they were to carry and not just arbitrarily made a certain thickness. These floors were placed over 8 in. of granular fill with slabs cut into areas not exceeding 2,500 sq.ft., surrounded by ½-in. expansion joints. Dummy joints were used to further divide the floor into areas of 260 sq.ft. In the airplane hangars, the floors were designed to support 80,000-lb. wheel loads concentrated over an elliptical area of approximately 1,000 sq.in. This required an 8-in. reinforced concrete slab thickened at the edges to 10 and 12 in. Gra beams which extended through the floor were provided carry all partitions so no partition loads were carried the floor slabs.

Paint, oil and dope storage building. Expansion joints were locat at approximately 120-ft. intervals in larger buildings. All wa longer than 80 ft. were provided with either an expansion joint or control joint.

The depot was designed by J. Gordon Turnbull a Sverdrup & Parcel, associated consulting engineers, Cleveland, Ohio and St. Louis, Mo. Paul Cret, of Phil delphia, was consulting architect. The project was built Dunning-James & Patterson, contractors, Oklahoma Cit

Community High School—Roxana, Ill

By Raymond G. Alexander*

IN May, 1939 the Roxana (Ill.) High School District No. 156 was established, and in October of that same year a special election was held to choose a site for a school building and to authorize its construction. The election was successful and the sale of bonds was approved for the construction. When the bids were received they exceeded the bond issue; however, through the generosity of the Shell Oil Co. the contracts were let in September, 1940.

The new school, situated near the Shell Oil Co. plant, is located on a 17-acre site which is laid out to provide maximum outdoor recreational space, including a football field, a quarter-mile track, various types of playcourts, and baseball diamonds and practice fields. It is the aim of the school district officials to make the school's recreational facilities available to the entire community.

The building, itself, is designed for maximum use by t community and comprises at present an academic porti and an equally large indoor recreational unit which ser also as an assembly room or auditorium. Provision is ma in the plans for additional units which will be added to t building as future needs require.

Design of the structure is along modern lines with stro horizontal emphasis given to the academic portion by of rustications, canopies and overhanging eaves. The gy nasium-assembly unit emphasizes mass and strength a the two portions are of sufficient contrast in design a appearance to distinguish their different functions.

Although the frame of the structure was always intend to be concrete, alternate designs were prepared for the wa —brick and architectural concrete. When bids were ceived the concrete design was lowest, and the Kloster C

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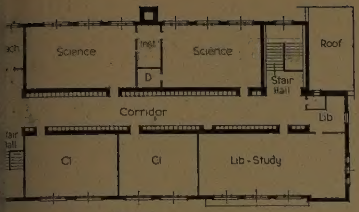
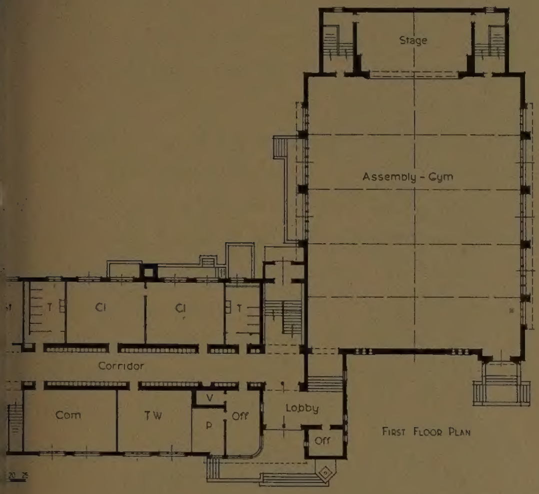
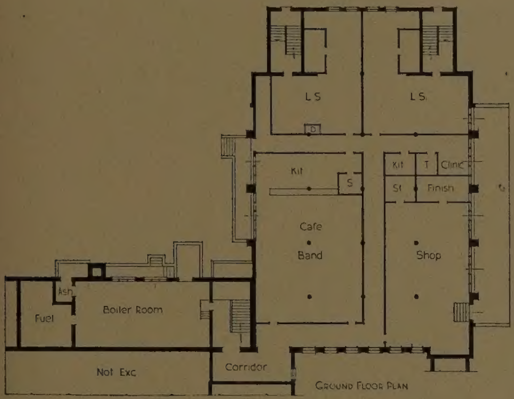
*President, Wm. B. Ittner, Inc., architects and engineers, St. Louis.



Second Floor Plan



First Floor Plan



Ground Floor Plan

St. Louis contractor, was awarded the contract for architectural concrete.

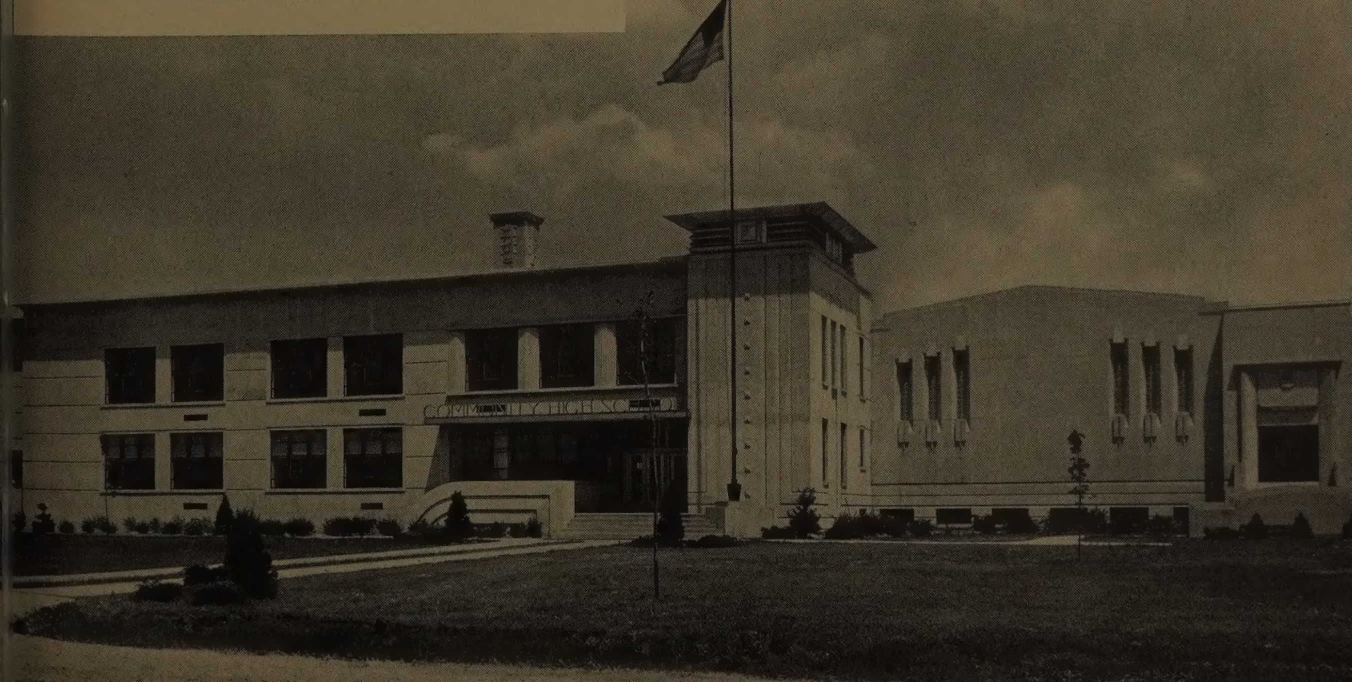
Walls of the building were formed against plywood except for those portions where corrugated iron was used for fluted areas. Rustications in the main wall areas and vertical rustications in the tower portion, as well as certain other detail, were produced by inserting milled wood molds.

Control joints were used at the center of every opening, this being one of the earliest projects in this area in which this now well-established device for controlling the location of cracks was incorporated in the plans.

Floors of the academic building are of concrete joist construction formed with removable metal pans, the floors being 10 plus 2 in. thick. The floor of the gymnasium-auditorium is flat slab construction as shown in one of the accompanying views of the wood working shop. The flat-roofed portion of the structure is concrete and the gymnasium roof is wood. Throughout most of the building there are suspended ceilings finished with acoustical material. Floor finish in corridors and stairways is terrazzo. The gymnasium floor is maple on concrete while linoleum is used in all classroom areas except the shops where the concrete is exposed.

In designing the concrete mix, local aggregates were found to lack sufficient fine materials. To overcome this a

Community High School at Roxana, Ill., was designed for the use of the entire community, providing a combination recreation and assembly building to the right of the academic section. Designed by Wm. B. Ittner, Inc., architects and engineers, St. Louis; built by the Kloster Co., St. Louis, at a cost of $185,937.



maximum of 6 per cent loess soil was added to the Meramec sand used in the concrete for the exterior exposed walls. River sand was used for interior concrete work. Crushed limestone was used as coarse aggregate.

Most of the construction was carried on during cold weather and normal protective measures were employed to permit concreting to continue. However, during this period some days were so bitterly cold that concrete work was discontinued. On reasonably cold days freshly placed concrete was protected by tarpaulins and salamanders.

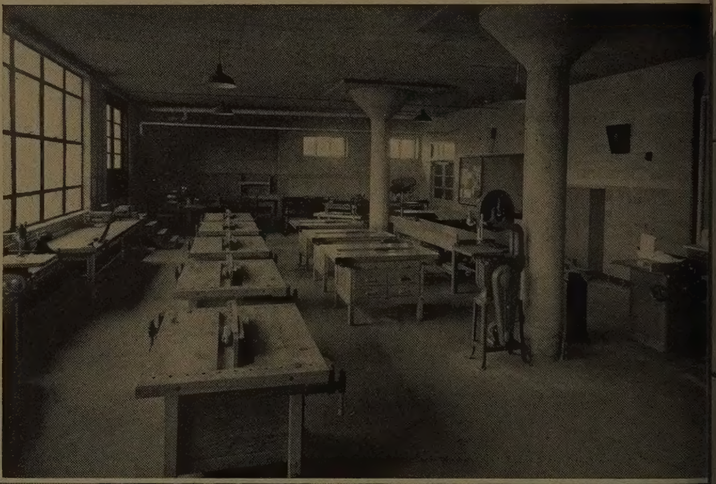
Since the project was started well before Pearl Harbor, steel sash, aluminum doors, and bronze hardware were purchased and on the site before shortages in metal fittings became critical. There was no need to alter plans as the work progressed, as has been the case in a number of buildings started at the same time; and the building was completed substantially as it was planned.

The exterior walls were finished by cleaning to produce a uniform color and texture throughout the building.

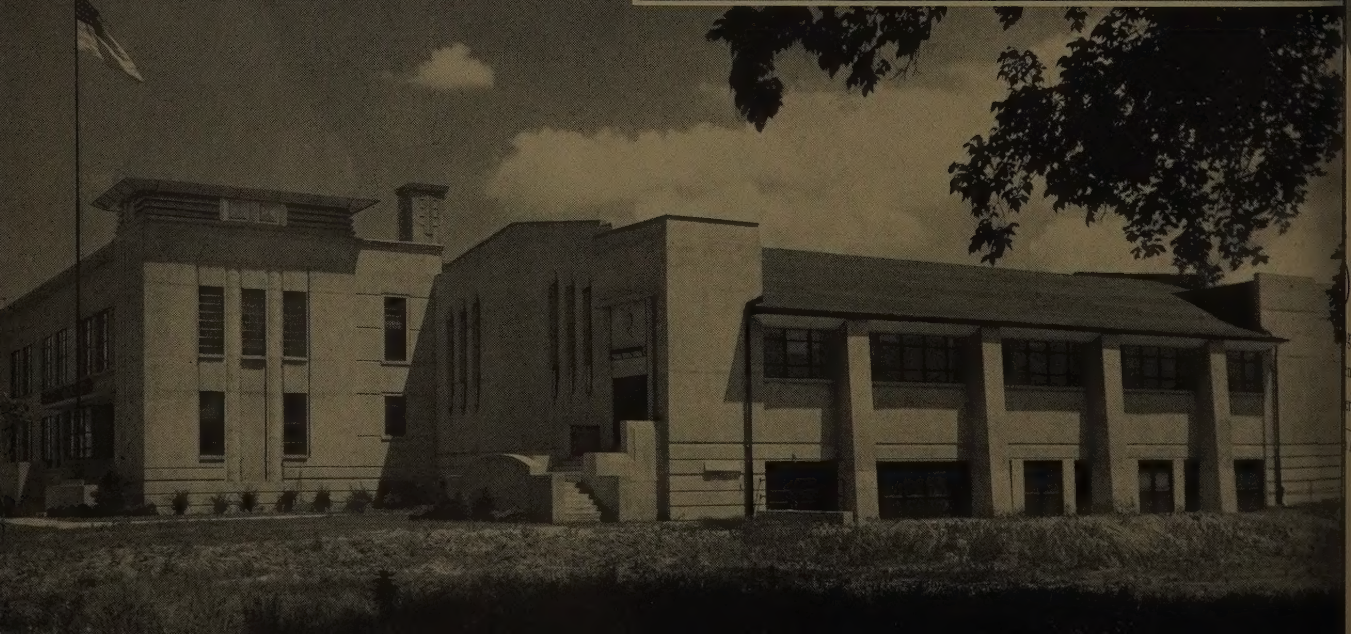
Heating, ventilating and electrical installations are of the most modern type and all are controlled by the building engineer from the apparatus room. Ventilating dampe are controlled by compressed air switches, and fan moto are manually controlled by push-and-stop buttons locate on a central switchboard. From the electrical distributi panel, branch feeders are run to the several lighting a power cabinets located throughout the building.

The building, designed for 350 students, contains 560,0 cu.ft. and was built at a total cost of $185,937, or a litt over 33 cents per cu.ft. Equipment cost $22,659, and t total cost of the project, including site, building and equi ment was $226,580.

Since the building has been occupied the originally pla ned academic schedule has been augmented to inclu courses in preflight study, radio, air navigation and mo advanced mathematics as well as home planning, heal and child care. Most stepped-up program is in the physic education department where physical training progra comparable to those offered in military establishments ha been inaugurated. The whole school is now geared to wa time education as well as to a program of adult educati and recreation.



Although the frame of the structure was always intended to be reinforced concrete, alternate designs in architectural concrete and masonry were prepared. The concrete bid was lowest. Walls were cast against plywood. Floors in the academic portion are concrete joist construction formed with removable metal pans. In the gymnasium the floors are flat slab as indicated in the photo of the manual training shop.



U. S. Naval Hospital—Long Beach

it of the decorative design features he new Naval Hospital at Long h, Calif., are confined to the tower on. The skylighted main entrance by is supported on small steel cyl- s resting on granite columns. The s (circle, below) are marked off into res made by tacking narrow strips e plywood sheathing.

By Claud Beelman*, AIA

NE of the Navy's new hospitals, completed in wartime, is a $3,000,000 structure overlooking the Pacific at g Beach, Calif. Started the day before Pearl Harbor n the first of 50,000 cu.yd. of concrete was placed, the rstructure was completed in five months and the establishment was fitted out and commissioned at the end of the first year of war.

Reputed to be one of the most modern and best equipped of the Navy's hospitals, it has some features which are startlingly new in military hospitals in the United States such as bombproof shelters for patients.

Designed for progressive construction as hospital needs develop, the plant is located on a 100-acre plot and comprises now some eight structures. Dominant structure of the group is the four-story administration building which has a tower portion running the full depth of the building providing a fifth story at this point. The administration building is 223x63 ft. and has a full basement.

Connected with the administration unit by enclosed passages are two ward buildings each 192x40 and three stories high. These are the first two of 10 ward buildings envisioned in the ultimate plan. The future structures will be located five on each side of the administration unit.

To the rear of the front group of three structures is the

Angeles, Calif.

ew of Naval Hospital. The four- and five-story centr
les. R. E. Campbell, of Los Angeles and Compton, ge

[illegible] are employed to separate adjacent structures.

Floors throughout the building are finished with a variety of materials including terrazzo in the entrance lobby, asphalt tile in corridors, and several types of tile in operating rooms, mess rooms and toilets.

The ward buildings present interesting contrasts to civilian hospitals, each floor being a self-contained hospital unit. The open ward has 28 beds arranged on both sides of a central aisle, with all floors finished in terrazzo except for the aisles which are asphalt tile to reduce the sound of

Rear view of administration building (right) showing connec with subsistence building at ,left. Unglazed corridors pro sheltered outdoor walkways for patients.

Two sides of the 100-acre site are fenced by a concrete wall which terminates at the main entrance in pylons bearing the name in incised let

building, flanked by three-story ward buildings. Ultimately there will be 10 ward buildings. The project was designed by Claud Beelman, architect,

ovement through these areas. Adjacent to the wards are o 2-bed quiet rooms, a solarium, doctor's office, nurses' om, laboratory and other facilities.

Concrete work on the structures was completed in rapid ne. The contractor had ample equipment of his own, luding excavating equipment, which facilitated opera- ns. He set up his own batching plant and bulk cement rage silo on the site. Six trucks carrying three to five tches of material at a time were used to deliver the tches to the mixers.

Concrete was mixed at the point of placement in two -E pavers discharging directly into the hoist skips which re elevated to the required levels. Concrete was deposited low lifts and thoroughly worked into the forms. Work- anship on the concrete is of the highest quality as indi- ted by close-up photos showing uniformity of texture and arpness of molded detail.

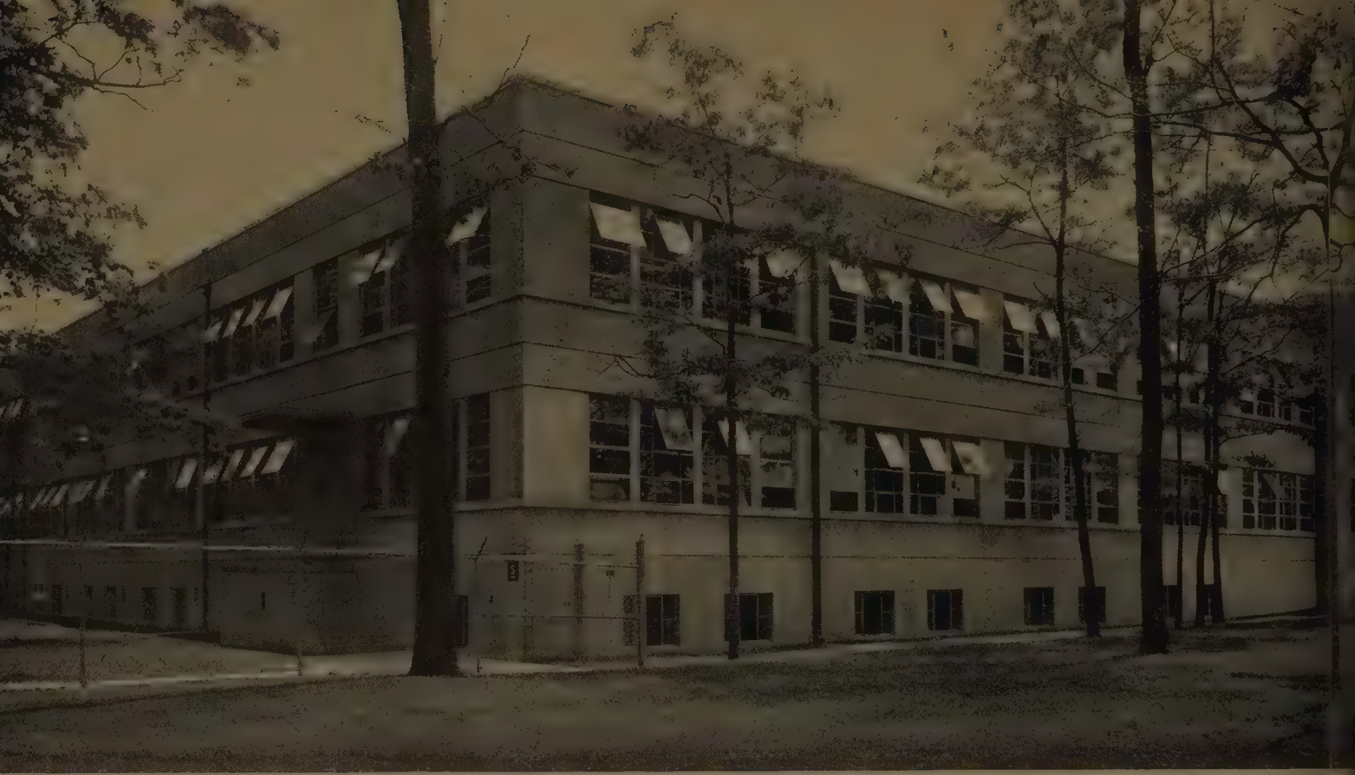
For roadways, walks and curbs, and reservation enclosing lls, the contractor used 4-cu.yd. truck mixers. The con- ete wall extends along two sides of the grounds, adjacent to the highway, with wire fencing being used on the other sides. Height of the wall is about 7½ ft., and it was constructed in sections with expansion joints. Movable forms with plywood liners were used for the enclosure walls, which are divided into 8-ft. wide panels by means of recessed joints. At the main entrance the walls terminate in concrete pylons bearing the name of the institution.

's building, shown here, has architectural concrete walls, concrete wood floors. The nurses' home has concrete walls and frame and a ood roof over a second-story ceiling slab of concrete.

The powerhouse, laundry, shop and garage building complete the utility group at the hospital. The cantilevered roof of the loading platform of the subsistence building is in the right foreground.

Although priorities for critical materials necessary to the construction became increasingly difficult to obtain as the project neared completion, the buildings were finished and commissioned on December 15, 1942 with Capt. W. H. Michael, (MC), USN, in command.

The plant was designed by Claud Beelman, architect, of Los Angeles, and built by R. E. Campbell, general contractor, of Los Angeles and Compton, Calif.



Technical division building at Edgewood (Md.) Arsenal is a two-story structure laid out in an E-shaped plan. Expansion joints separate the main un an three wings into four independent structures. Designed by Whitman, Requardt & Smith, architects-engineers, of Baltimore, the structure was built by um Construction Co., also of Baltimore. Work was under supervision of U.S. Engineers.

Technical Building for Edgewood Arsen

A WAR structure recently completed at Edgewood Arsenal, at Edgewood, Md., is the technical division building, a two-story architectural concrete structure with three wings. The building is 299 ft. long across the main facade. Two of the wings are 58 ft. wide and one is 51 ft. wide, and with the main portion they form a huge E-shaped plan. Expansion joints are located between the wings and the front portion, making four independent structures.

The building is modern in design, with the curved corners and deep reveals of the main entrance providing the dominant architectural feature. Walls are smooth-formed against plywood and finished by cleaning. The main entrance canopy is separated from the walls at either side of the entrance by an open joint and is supported by two columns and a heavy beam between the columns and the building proper. Cutting the canopy loose from the main walls in this manner has prevented cracking of the canopy slab which happens so frequently.

Two stories and basement, the building has 12-in. thk foundation walls reinforced with two curtains of bs. First- and second-story walls are 9 in. thick with 8 thick spandrels. The 9-in. walls are reinforced with t curtains of bars while the spandrels are reinforced in e exterior face only.

Construction joints were located at the top of floors a bottom of window sills and at window heads. Wind sills were cast later.

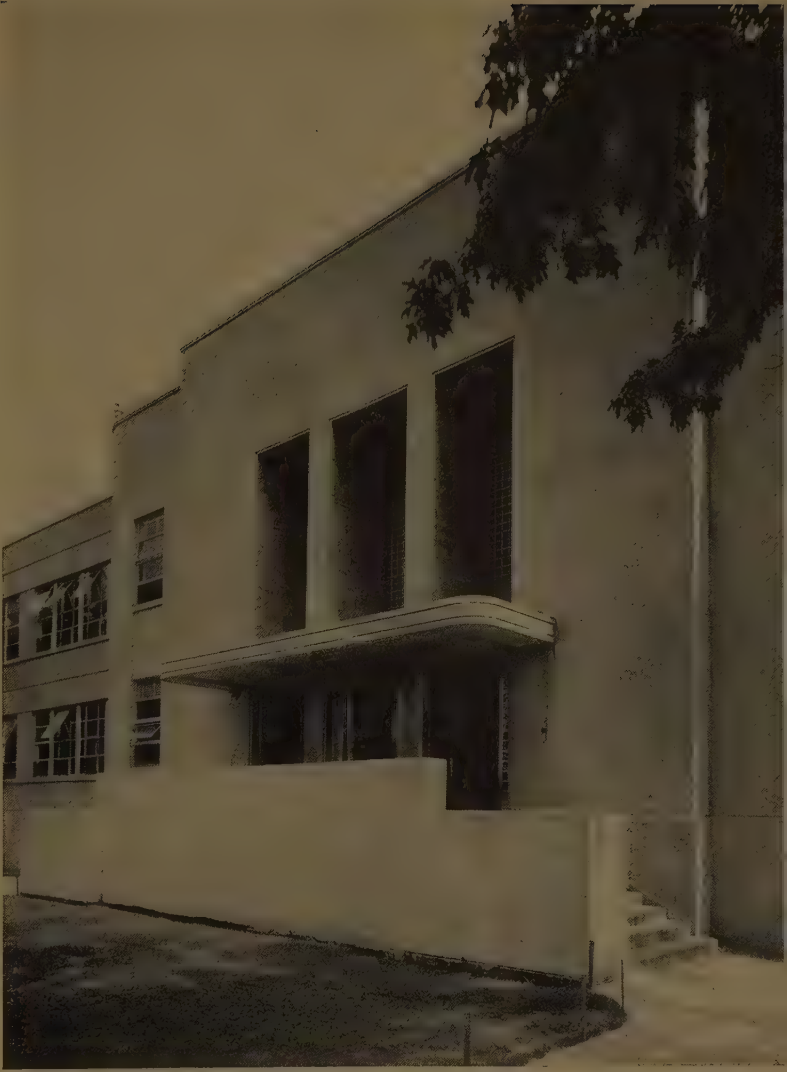
Control joints are in line with the joints of second-st window openings, separating the spandrels from the pi These joints extend only from the floor line to the wind sills but have performed quite satisfactorily. In the ba ment, control joints are located at the outside jambs each pair of small windows and terminate in the rusti tion at the top of the first-floor slab. Above the floor l joint is offset to the jambs of the window open-s above. It is felt that these control joints would more effective if carried straight through the ndrel from the heads of the basement windows the sills of the windows above.

The structure is of beam and slab design and has central corridor with rooms located on both es. Columns are spaced at 22-ft. 6-in. centers. terior columns are 18x18 in., and interior umns 20x20 in. in the basement and first story d 18x18 in. above the second floor. Girders par-eling the corridors are 16x30½ in. and carry x20-in. floor beams with a 4-in. solid floor slab. ams are perpendicular to the centerline of the rridor, but do not extend across it. Corridor ders are offset from the centerline of corridor lumns in order to keep the interior partitions unbroken alignment. This also shortens the an of the corridor slab.

Four inches of Aerocrete fill was placed on all uctural slabs. The corridor floors have a wear-g surface of asphalt tile except in the entrance bby where the finish is terrazzo. Additional re-forcement was placed in the floor at each corner the building in the form of two ⅝-in. round rs on both sides of the columns. The bars extend agonally out into the bay.

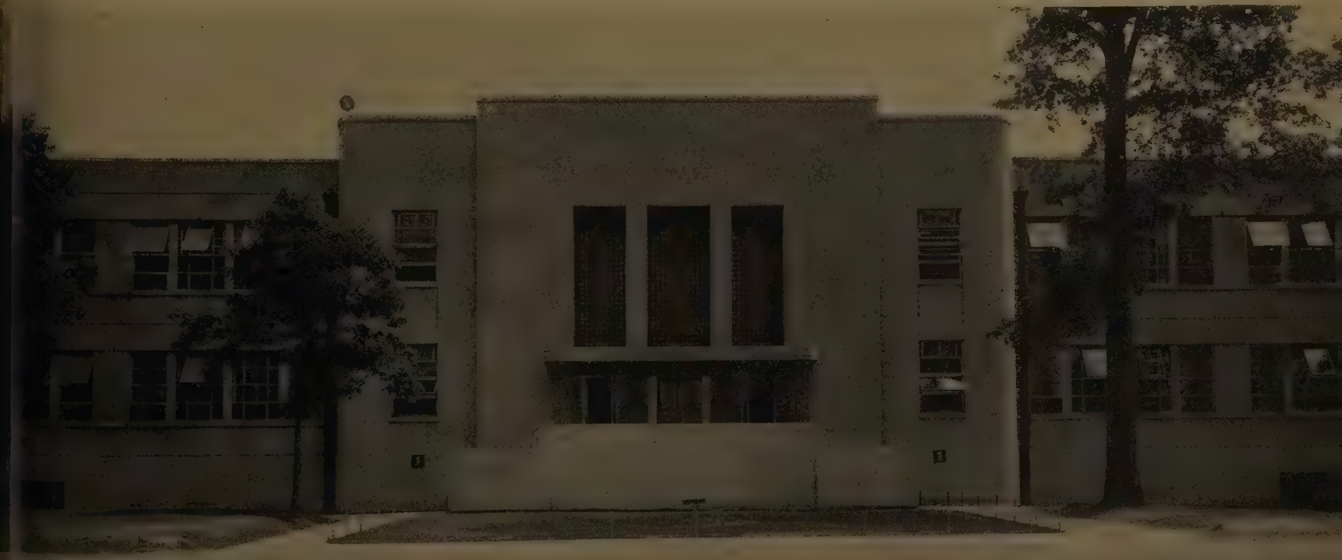
Interior finish is hard wall plaster on 4-in. fur-ng tile placed against the exterior walls.

Designed by Whitman, Requardt & Smith, chitects-engineers, of Baltimore, the structure was ected by Cummins Construction Co., of Balti-ore. All work was under the direction of Lieut.-l. G. A. Meidling, U.S. Engineers, the area gineer.



Main entrance canopy is not connected to the walls at either side of the entrance, but is supported by two columns and a heavy beam between the columns and building proper.

Curved corners, deep reveals with glass block panels and good proportions make the main entrance an effective architectural feature of the building.



Bowmar St. School, Vicksburg, Miss., was designed to da
illumination for classrooms—all on the first floor. Secon
department. This modern structure was designed by N. W
Miss., and A. Hays Town, architect, Baton Rouge, La

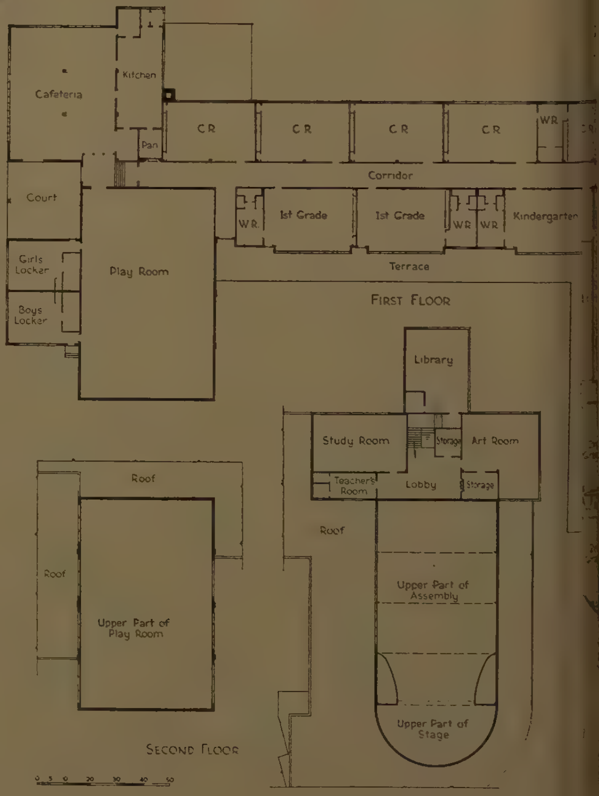
Two Schools for V

By N. W. Overstreet*, AIA

HISTORIC Vicksburg, Miss., which cherishes the old buildings and old customs symbolic of so much of its 150 years of life along the Mississippi, has recently completed two school buildings which express, in design and equipment, the most progressive ideas in education. These buildings, the Bowmar St. Elementary School for white children, and the Cherry St. School for negro children, are also erected in the most modern of building materials—architectural concrete.

Alternate bids for concrete and brick construction were taken for the two and concrete was low by almost $9,000.

The Bowmar St. School represents a considerable departure in this area in the design of school buildings. Old ideas of grouping rooms into a formal enclosure of four walls was abandoned in favor of a scheme of intersecting axes forming a large L 258x316 ft. The object of this arrange-



Bowmar Street School

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*Jackson, Miss.

ment was to provide maximum sunlight in the academic classrooms all of which are located on the first floor.

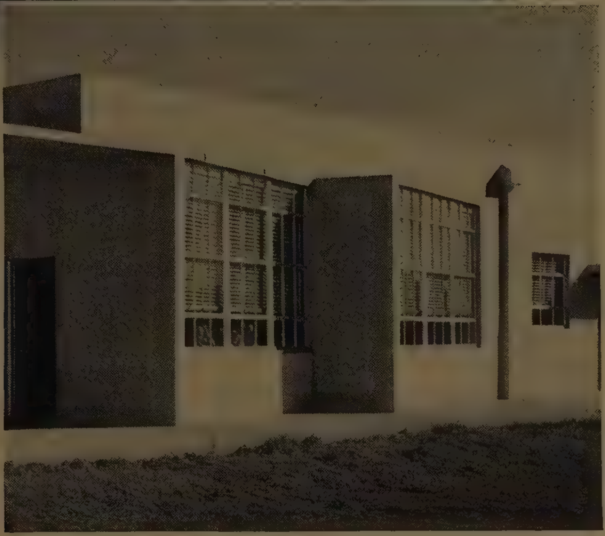
As the plans show classrooms for kindergarten and primary grade children are located on the inside of the L facing the east and south. These classrooms open onto a concrete terrace on which the young children may play in the sun until well after noon. To provide additional early morning sun for one second grade room having a south exposure the windows are set obliquely to the east-west line of the wall, and the wall of another room is curved to give a partially eastward exposure.

Classrooms for more advanced pupils are located along the west frontage of the building while science rooms are arranged for full north lighting.

The only usable second floor area is located at the intersection of the two wings. The space here includes a library projecting over the automobile drive, a study room, teachers' room, storage space and an art room which has north and east exposure through 19-ft. high windows.

To avoid interruption to advanced elementary class work, rooms devoted to kindergarten, and to first and second grade pupils are in reality self-contained suites, including classroom, workroom and complete cloak- and rest-room facilities. Since these rooms all open onto the terraced inside court, frequent play sessions can be held without disturbing older students occupying rooms on the opposite side of the corridor.

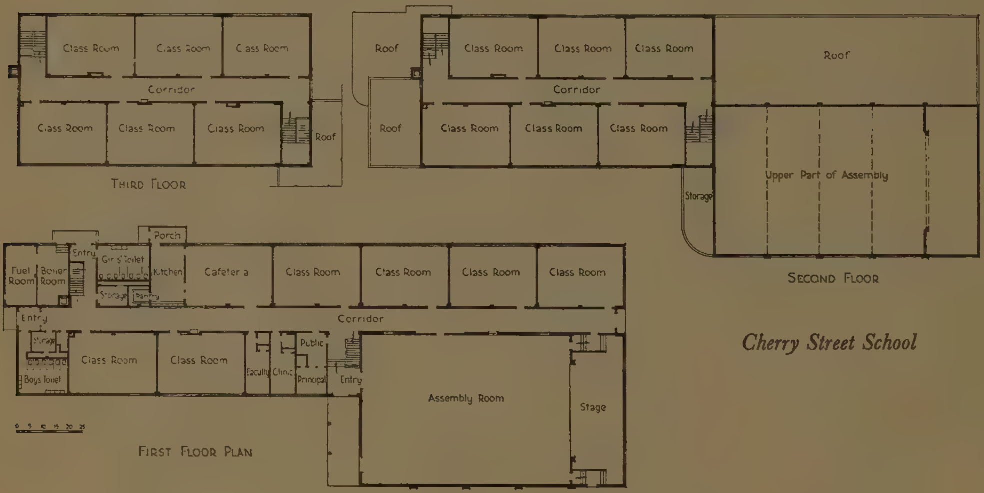
The streamlined shape of the building is enhanced by the smooth concrete walls which were formed against plywood and are 9 and 12 in. thick. Concrete requiring a minimum of 6¾ sacks of portland cement was designed for a strength of 3,600 p.s.i. A slump of 6 in. was obtained, permitting the concrete to be spaded in the forms. No



Windows having a south exposure are set obliquely to the east-west line of the wall, providing additional eastward exposure. The concrete walls were cast against plywood and finished by carborundum rubbing.

Cherry St. School for negro children is a three-story concrete building replacing an old wood structure. It has continuous horizontal window bands providing maximum daylight. Also designed by N. W. Overstreet and A. Hays Town.

Main entrance to Cherry St. School. To the right is the auditorium. The structure was built into the side of a hill requiring considerable excavation.



Cherry Street School

vibration was used.

After forms were stripped the concrete walls were finished by rubbing with carborundum stones.

Inside faces of the exterior walls were finished with plaster applied directly to the walls after they were prepared with a special plaster bond. Above the drinking fountains in the corridor walls mosaic tile has been worked into scenes from fairy tales.

Floors throughout the building are concrete and the first floor slab excepting in the corridors is placed on sand fill. The corridors are finished in terrazzo.

Certainly the dominating architectural feature of the building is the main entrance elevation at the intersection of the two long wings. Here a plain concrete wall the full two-story height of the building is given brilliant contrast by the 19-ft. high corner window of the art room. In front of this mass is a sculptured group in precast concrete.

While the Cherry St. School due to site restrictions lac many of the striking architectural features of the Bowm St. building, it includes the same principles of design f educational use and identical construction.

Fitted onto a comparatively narrow lot, it is three stori high and 238x91 ft. in plan. Major portions of the wa facing east and west are windows which are arranged almost continuous bands running the length of the buildin To the north of the three-story academic portion is a cor bination gymnasium and auditorium.

This building contains 18 classrooms, offices, cafeteri kitchen and rest-room facilities, making it one of the mo modern and spacious schools for negro children in th country. It replaces an old frame structure which was r moved from the site to make way for the new structur

Both of these new Vick burg schools were designed N. W. Overstreet and A. Ha Town, architects, Jackso Miss.* They were constructe by Coleman & Britt, contra tors, of Jackson, Miss.

Mayor J. C. Hamilton ar aldermen of Vicksburg, th board of education, and H. Cooper, superintendent schools, gave unstintingly their time and advice in pla ning what they intended to the most modern public schoo in the state. The results hav more than satisfied city ar school officials and the citize of Vicksburg who see in these buildings another step in progressive school system program.

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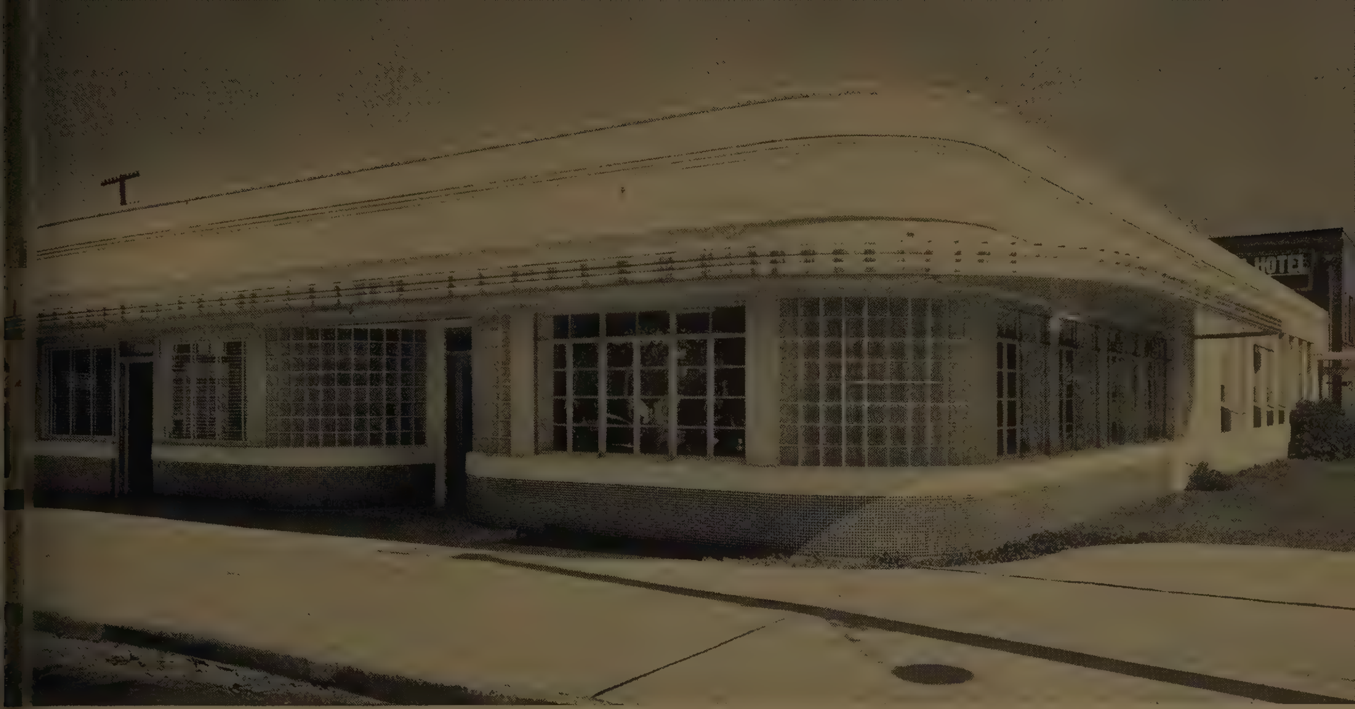
*Mr. Town is now located in Baton Rouge, La.

East side of Cherry St. building. Concrete retaining walls form ea main floor which is several feet below street grade at this point.



orial and printing plant for the Bryan, Tex., Daily Eagle. *Compactly laid out on one floor approximately 55x120 ft., the various departments are ghted by the generous use of glass block panels and clear glass windows. Exterior walls are finished with a dash coat of buff portland cement stucco. ern building was designed by Atkinson & Sanders and built by J. R. Blackmore & Sons, contractors of Austin, Tex. Cost was about $21,000.*

Modern Plant for Texas Daily Paper

By Mrs. Lee J. Rountree*

THE Bryan, Tex., *Daily Eagle*, established in 1889, has had a history of constant progress and leadership. Starting as a weekly paper it entered the daily morning field in 93. In 1901 the *Eagle* absorbed the *Pilot*, an afternoon ily, and at that time became an afternoon newspaper d joined the Associated Press, being the first small city ily in Texas to have that affiliation.

Typical of the *Eagle's* progressive spirit, architectural concrete was chosen as the most appropriate building material th which to house its present modern newspaper plant. o detail was overlooked in the planning of the building insure efficient operation and for the convenience of the ublic. Reception rooms, business office, editorial rooms, nd all mechanical operations are compactly laid out on ne floor approximately 55x120 ft., amply illuminated by rge areas of glass block and flat glass.

The architectural concrete walls are 8 and 10 in. thick. ue to the loading of presses and mechanical equipment, the spot footings and piers are especially heavy. The concrete floor was constructed for the heavy-duty service required of floors in newspaper plants.

Walls of the building, which are 15 ft. high, were cast against shiplap forms lined with ¼-in. plywood panels. Finish on the exterior is a thin (about ⅛-in.) dash coat of buff colored portland cement stucco. The tile facing of the low wall beneath the windows across the front and returning about 30 ft. around one corner serves as a protective wainscot against scuffing marks, and lends an interesting note of contrasting color.

The building, designed by the former firm of Atkinson & Sanders, architects and engineers, was constructed in rapid time by J. R. Blackmore & Sons, contractors of Austin, Tex. All equipment was moved from the old quarters to the new building over one week end, and the plant went into operation without missing a single edition of the paper.

Cost of the structure was approximately $21,000 or 26 cents per cu.ft.

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ublisher and managing editor, Bryan *Daily Eagle*.

View of battery of stacks of U-shaped test cells at a Wright Aeronautical Corp. plant. This photo was taken from an intermediate roof leve

Concrete in Wright Aeronautical Corp. Pla

WARTIME construction, restricted by shortages of critical materials, has resulted in ingenious feats of engineering and construction in making one material serve the traditional purposes of another, and frequently it is found that the "substitute" material fulfills all the requirements as well if not better than the heretofore commonly used material. A typical example of this is found at one of the plants of the Wright Aeronautical Corp. where two of the four concrete structures are of unusual construction.

Oldest of the concrete structures at the plant is a serie
of 72 U-type test cells. These are the familiar vertica
open-top structures with 12-in. thick walls. Forming wa
by means of plywood panels, and the structure was fir
ished with portland cement paint.

A newer group of test cells consists of 40 units, eac
larger than the original group of cells and of somewha
different design. Thirty-eight of these cells are identica
and two are dynamometer cells. They are arranged on

gr of test cells as seen from ground. This structure and all others tra here were designed by Albert Kahn and Associates. The older cel vere built by Mahoney-Troast Co., of Paterson, N.J.

379x296-ft. plan. Control joints were used in this structure which has long walls of varying heights. Plywood of ⅝-in. thickness was used for forming the walls which were finished simply by cleaning.

The two unusual structures, from the standpoint of construction, are the water-softening plant and the combination boiler-house and compressor building. From the exterior they appear to be simple, straight-forward structures. But on the inside they appear very little like the traditional buildings of this type.

To conserve critical materials practically all interior installations normally made of structural steel shapes and plates have been cast in place in concrete.

The boiler-house and compressor building is really two buildings, 130x110 ft. and 68x139 ft., attached to each other. The walls are high and some areas have intermediate floors and some have not. In place of the usual steel coal bunkers and hoppers, these fixtures were cast in place in concrete, requiring some unusual formwork for the sloping walls of varying thickness intersecting at numerous angles.

A novel concrete feature within the boiler house is a scale platform 16 ft. 6 in. by 110 ft. 8 in., suspended on hangers under the coal bunkers. The platform was built on shoring and after casting and curing, it was suspended on hangers from large concrete beams and supports removed.

More complicated than the boiler house is the water-softening plant, the interior of which is filled with bins

Unusual view of part of 72 older test cells, showing the open tops of U-shaped cells.

group of 40 new test cells at the same plant. These cells are of anced design than the older U-shaped type.

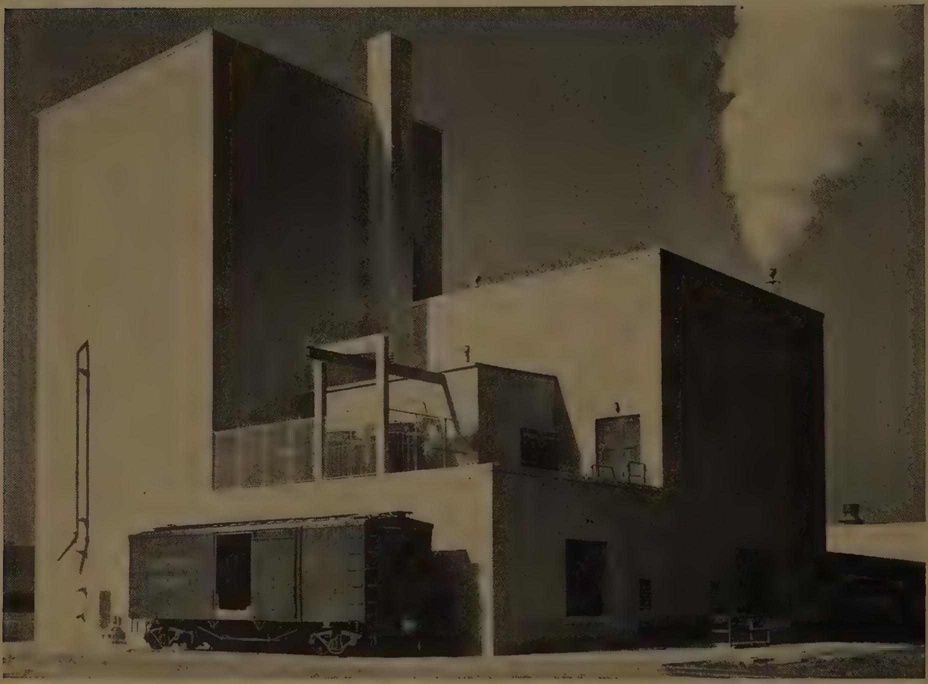
and tanks cast in place in concrete. Forming for these installations was quite complicated and special care had to be exercised in placing the concrete to insure watertightness.

The water-softening plant is 82x114 ft. with varying heights of walls, some of which are 12, 16 and 18 in. thick. It is beam and slab construction. An adjunct of this building is a circular softening tank with a wood roof.

Despite the complicated forming and the lack of typical construction features that permit speed in ordinary concrete work, as high as 2,000 cu.yd. of concrete was placed on some days during work on these buildings.

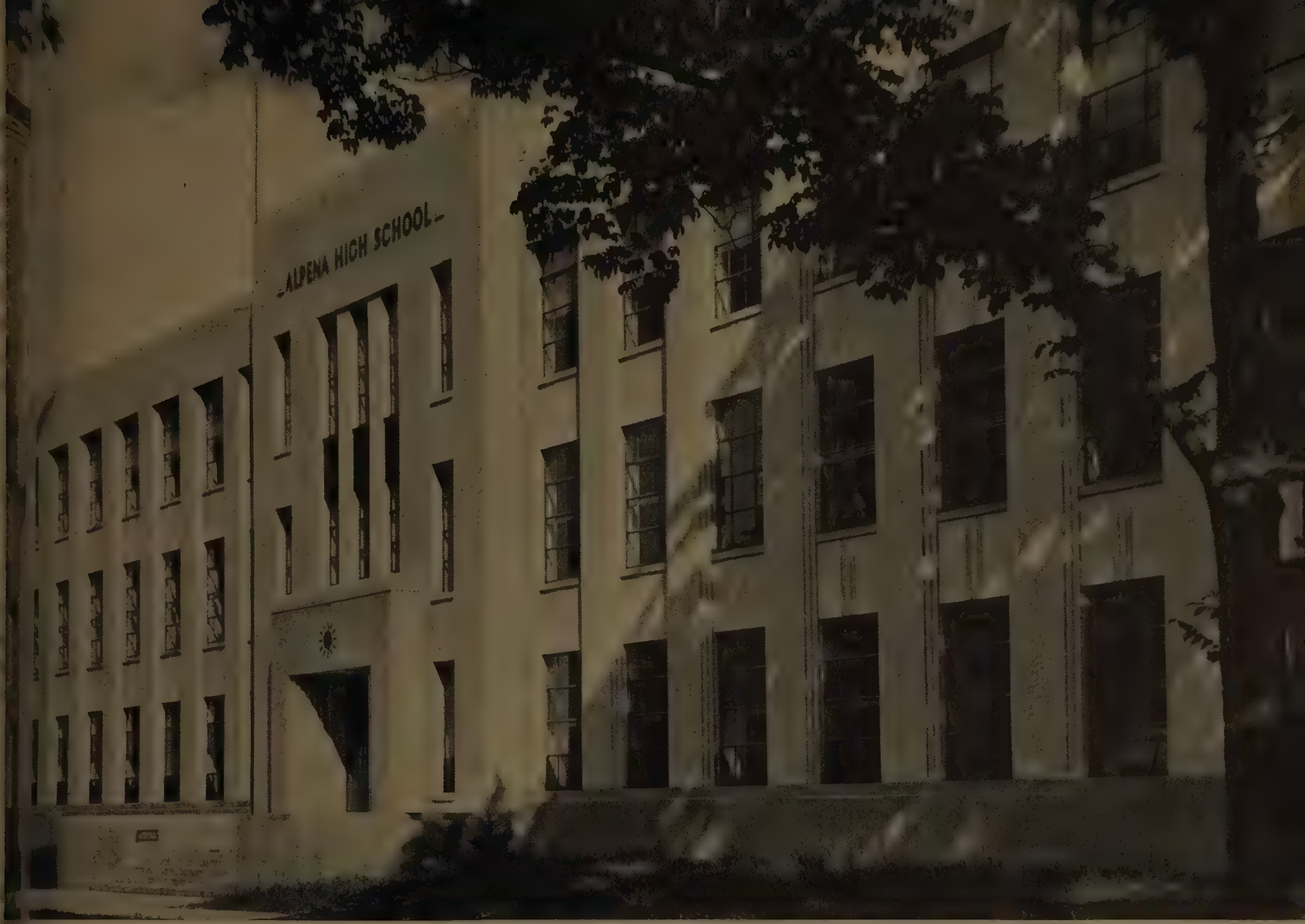
High walls of both the boiler house and softening pla were formed against plywood. Control joints were e ployed at approximately 20-ft. intervals. After forms we stripped the walls were cleaned and finished with portla cement paint in a dull grey color. From the exterior bo structures are simple and almost spectacularly mode

Albert Kahn and Associates designed all structures at t plant. The first group of test cells was built by Mahone-Troast Co., of Paterson, N. J. The newer test cells and t two complicated utility buildings were constructed by Fra Messer & Sons, Inc., of Cincinnati.



Simple in exterior appearance, t water-softening plant has unusua complicated interior concrete work c sisting of cast-in-place bins and tan.

Boiler-house and compressor build walls were formed against plywood a finished with grey portland cement pai. The interior fixtures, such as hoppe, bunkers and scale platform, are c structed of cast-in-place concrete. Fr Messer & Sons, Inc., of Cincinna, was contractor for this building s well as the new test cells and the wat-softening plant.



ree-story building of architectural concrete replaces old Central High School of Alpena, Mich., which was destroyed by fire in 1940. The building was by Anton G. Dohmen, architect, of Detroit, and built by Spence Bros., Saginaw, Mich., contractors.

School for Alpena, Mich.

By Anton G. Dohmen*, Architect

early spring of 1940 old Central High of Alpena, Mich., was almost completely destroyed by fire. Built ing the horse and buggy era, it had given useful service 50 years; and yet, during its comparatively short life n, it had become too antiquated for the purpose of dissing education in the streamlined, intricate and techal manner of today. In fact, it could have been considered olete 10 years before its doom; and for that reason its by fire was accepted by the progressive element of the nmunity more as a godsend than a disaster.

Not much time was spent bemoaning the loss. Instead, the spirit of the community was soon permeated with a keen desire to get a new building under way; and in the pursuit of that objective we were, in due course, selected to design and plan the new high school.

It was our good fortune to find ourselves working out the various problems of our newly gotten commission with a very keen and intelligent board of education which, in our estimation, stands head and shoulders above the average of such boards as they come and go in the life of a schoolhouse architect. This is mentioned here merely to bring out the fact that the success or failure of many building projects hinges on the judgment and experience possessed by the

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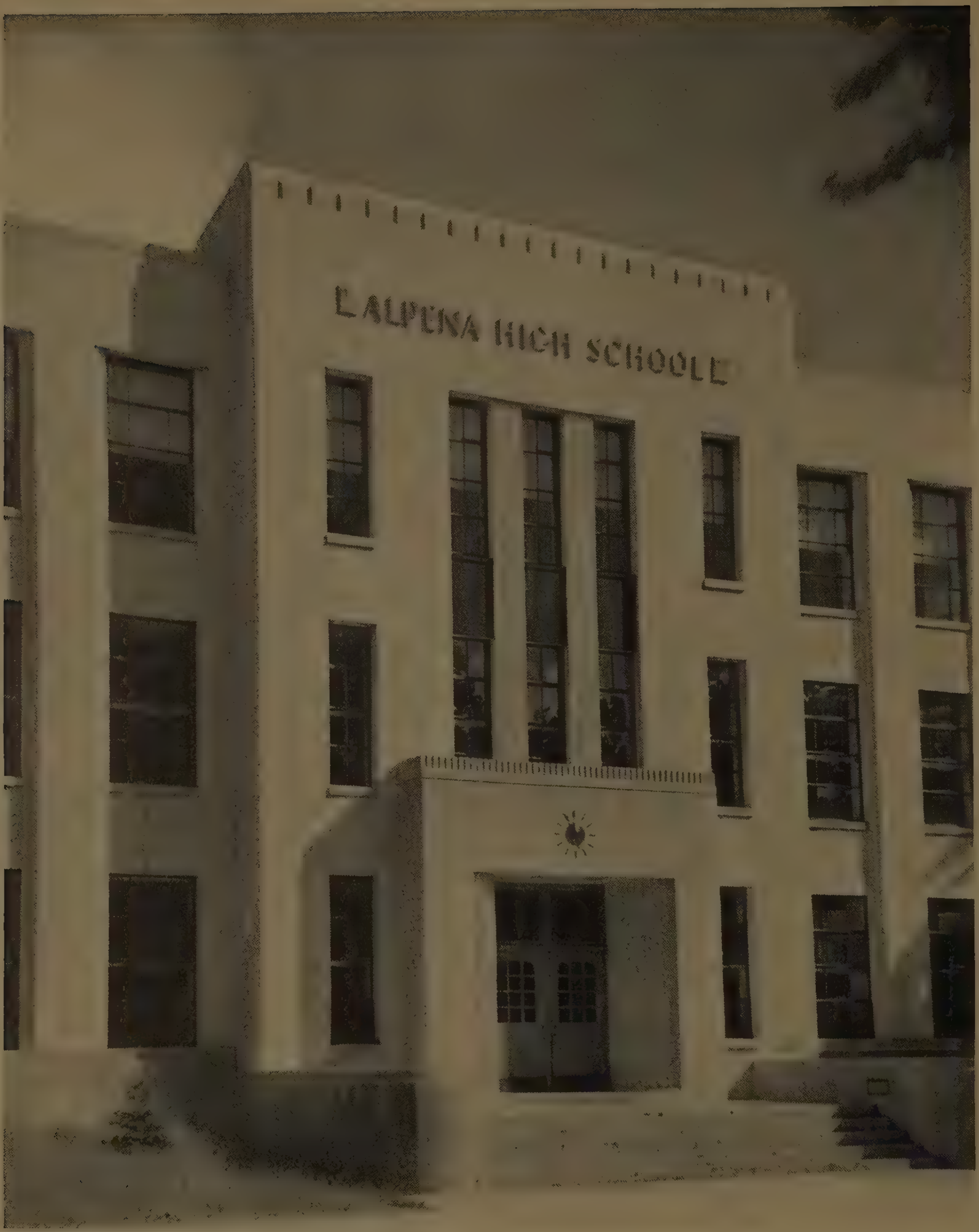
etroit, Mich.



Before the building was designe the architect made a thoroug study of architectural concre construction and incorporated in his design all of the advance practice in the use of control an expansion joints. Details we simple and easily molded.

authorities empowered to make the final decisions; and, too, because such authorities usually instruct the architect as to the types and kinds of materials with which their building is to be constructed.

On this particular job, however, it required no sales effort on the architect's part to obtain the proper selection of materials. The board's good judgment always dictated a policy which kept the factors of quality, quantity and suitability in their proper economic proportions. Thus, a structural frame consisting entirely of reinforced concrete was practically taken for granted. The materials which were to be used in the exterior wall construction were given a little more study. But the board's final decision in favor of architectural concrete was as natural as water runnin off a duck's back because, once assured that this type construction would make a satisfactory job, civic pride i their leading home industry—the manufacture of portlan cement—was allowed to become a guiding influence.

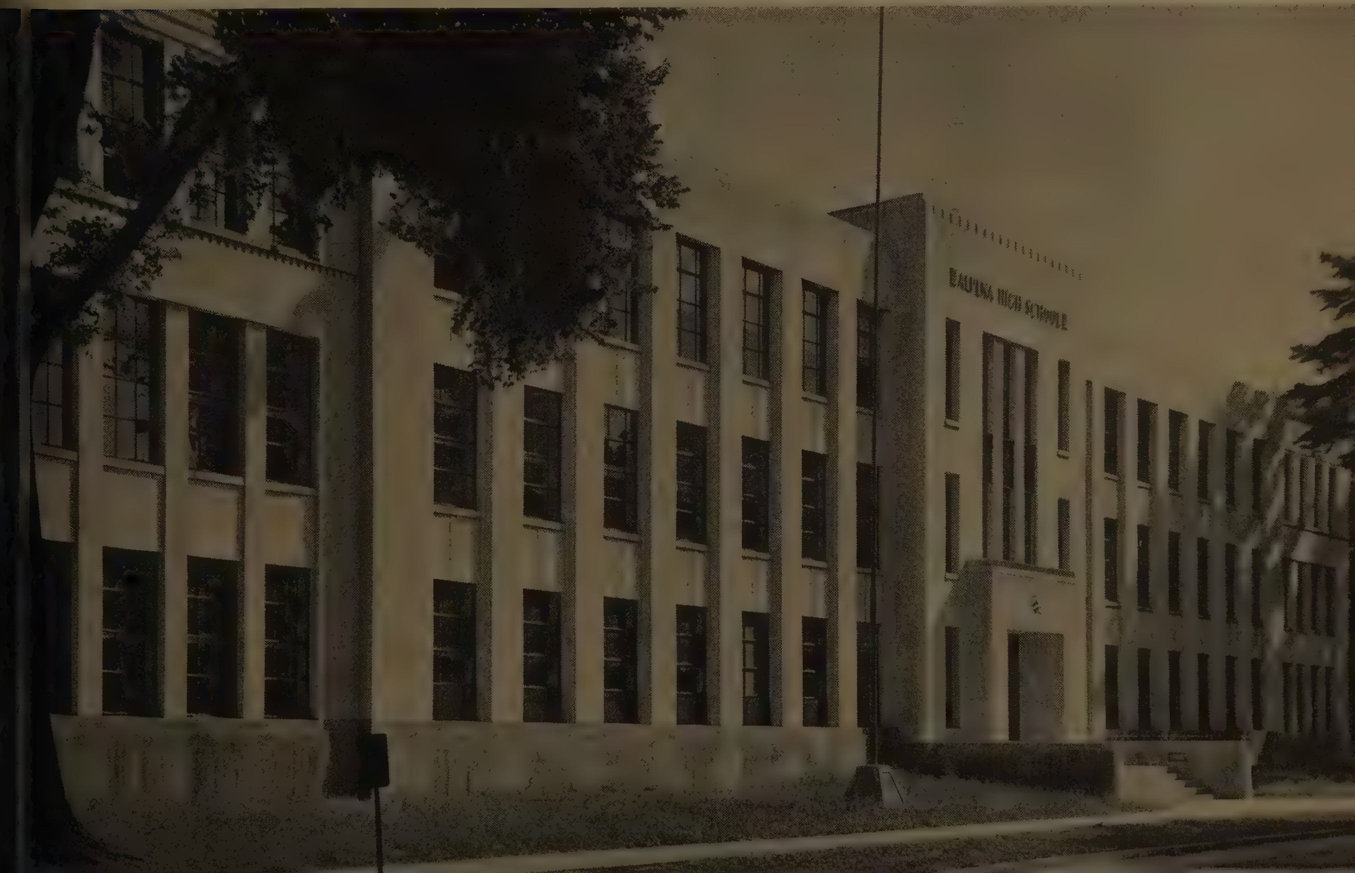
In so far as our practice was concerned, architectur concrete was a new and untried material. Consequently, was not easy to expel from our minds the thought that very important part of the job had to be designed and bui without the benefit of that age-old and all-importa teacher, experience. Naturally, it was a handicap keenl felt, but what we lacked in experience we were determine to offset with close study of the best information availab a by thorough inspection of recent contemporary work.

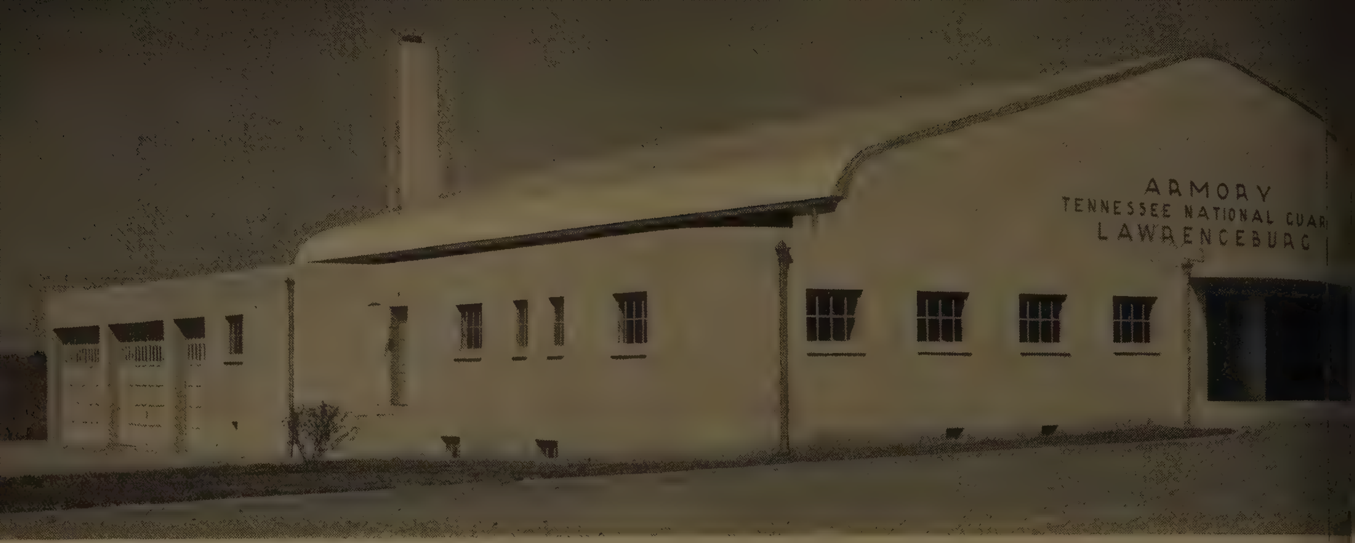
he excellence of the research that had been done and tl apparent effectiveness of the solutions already developed t ounteract one particular characteristic of concrete—to e and and contract and to shrink as it passes from its u ardened to its hardened state—allayed our fears. By tl time we had completed our own study and research, we w e thoroughly convinced of the possibilities of building a all-concrete structure without the defects which have n red and defaced some of the earlier work we had pre- v usly inspected. In each instance where unsatisfactory r ilts were apparent in the work we had inspected, it was a noted that the designer, either through ignorance or i fference, had violated the principles of correct design. T s bolstered our hope for the successful establishment in o structure of conditions which would prevent the de- t orating effects of the elements and which would permit n vement due to the forces of shrinkage, expansion and c traction without resulting in damage. To accomplish s results, it was necessary only to incorporate into the d gn the means already fully developed and which had p ved their value and effectiveness by successful perform- a e over a period of years under actual job conditions. t was as simple as that. Equally simple, yet apparently i ored by some designers, was the decision to put the wealth of information, which was ours for the asking, to proper use and to benefit by the successes and failures of those who are always ready and willing to take the initiative.

There is an old saying that "the proof of the pudding is in the eating"; and it may be of interest to note that the building illustrated in these pages has passed through two typical northern Michigan winters without any physical or surface failures. Such a test, of course, is not entirely conclusive. But it is a fair indication that the present perfect condition will remain unchanged, especially since the future forces of contraction and expansion due to temperature changes will cause but minor movements in comparison to those produced by the shrinkage during the drying-out period. Success seems to be in the offing.

The positive controls which have been developed for concrete in recent years, coupled with the practical, structural and economic advantages of concrete as a building material, and the latitude it offers a designer in creating any kind of form he may need to express his ideas and inspirations are important factors which will increase the popularity of architectural concrete in years to come. In our opinion, the proponents of architectural concrete may look forward to a promising future, but only insistence upon strict adherence to correct design and detail can make that future what it ought to be.

The Alpena School is now going through its third far-north winter without physical or surface failures.



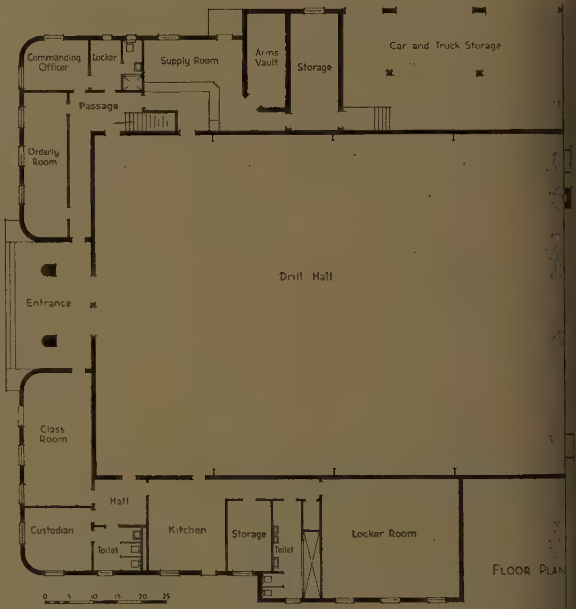


Lawrenceburg Armory —in Concrete

By Edwin A. Keeble*

EARLY in his administration Adj.Gen. Thomas A. Frazier of the Tennessee National Guard found that the state was paying rent for armory facilities in such amount that these funds, augmented by federal aid then available, would finance an entirely new system of state armories. Governor Prentice Cooper agreed that new armories under joint state, county and local government ownership and operation would not only be more economical over a period of time, but would provide more adequate facilities for training national guard units. The armory program was therefore set up on a state-wide basis, using state and local funds plus funds and labor provided by the Work Projects Administration.

In order to be as fair as possible to the people of the state, the armory commission decided that each community should select the architect for its own building, plans being subject to the approval of the armory commission. Seven of these new armories located in middle Tennessee thus came into our office. As it worked out eventually, all seven were designed very similarly as to size, floor plan, and architectural appearance.



When it came to deciding the type of construction, architectural concrete was obviously one of the first materials to be considered. There were three reasons for this—the rugged nature of concrete; the unsurpassable beauty of clean, white walls which have wide appeal in public buildings; and the fact that concrete had been used with singular success by the type of labor supplied by WPA all over the country.

A change in the WPA man-hour formula at the time the structures were undertaken led to the use of native stone masonry for the first six buildings in spite of the desirability of concrete. By using local stone, quarried as well as laid up by WPA labor, the ratio of man-hours of labor to cost of materials was increased. It must be explained that the cost of producing the concrete materials was considered a material charge whereas part of the cost of producing the masonry materials was considered a labor charge. Even so,

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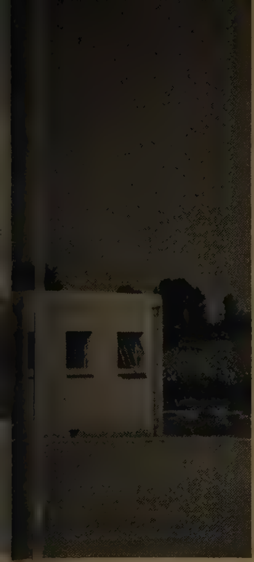
*Warfield & Keeble, architects, Nashville, Tenn.



New armory at Lawrenceburg, Tenn., is one of seven structures of similar design. The first six buildings were erected with native stone, requiring a large number of workers under the WPA program. As the armory program neared completion, however, labor shortages made it necessary to change the Lawrenceburg building to architectural concrete. It was completed in rapid time and at considerably less cost than the other six armories. Warfield & Keeble of Nashville, Tenn., were the architects.

crete canopy, cantilevered over the main entrance, provides all- ather shelter.

cost of concrete materials was only slightly in excess of masonry materials, but the greater amount of labor uired by the latter resulted in its use.

As the program neared completion, however, and the ernational situation was rapidly getting serious, the WPA lized the importance of speed in getting the program npleted in time to be of maximum value to national ense. The man-hour formula was then set aside in the e of the Lawrenceburg Armory and it was quickly resigned for architectural concrete.

The purpose of this article is to give a clear and fair estimate of the advantages of architectural concrete in rapid, economical wartime construction. Here are the facts:

1. As expected, Lawrenceburg Armory was completed in considerably shorter time than any of the other armory buildings; in fact, although it was started after all others, it was completed before most of the others.

2. Final over-all cost of the Lawrenceburg concrete building was substantially less than for any of the other six armories, although under the WPA formula the nonlabor cost of the concrete building was 10 per cent higher.

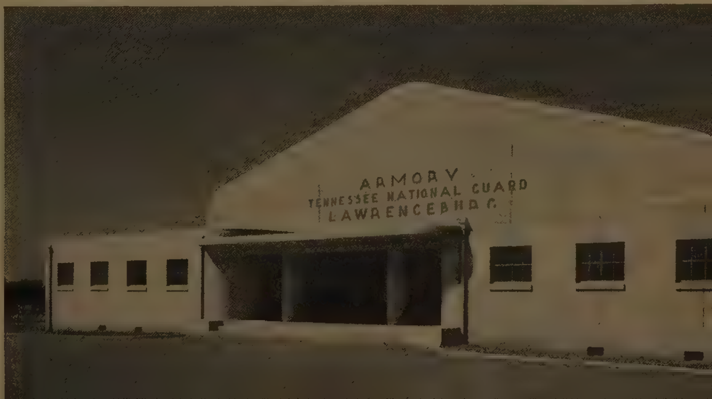
3. The appearance of the building is more satisfactory to the public. This is evidenced by general comment.

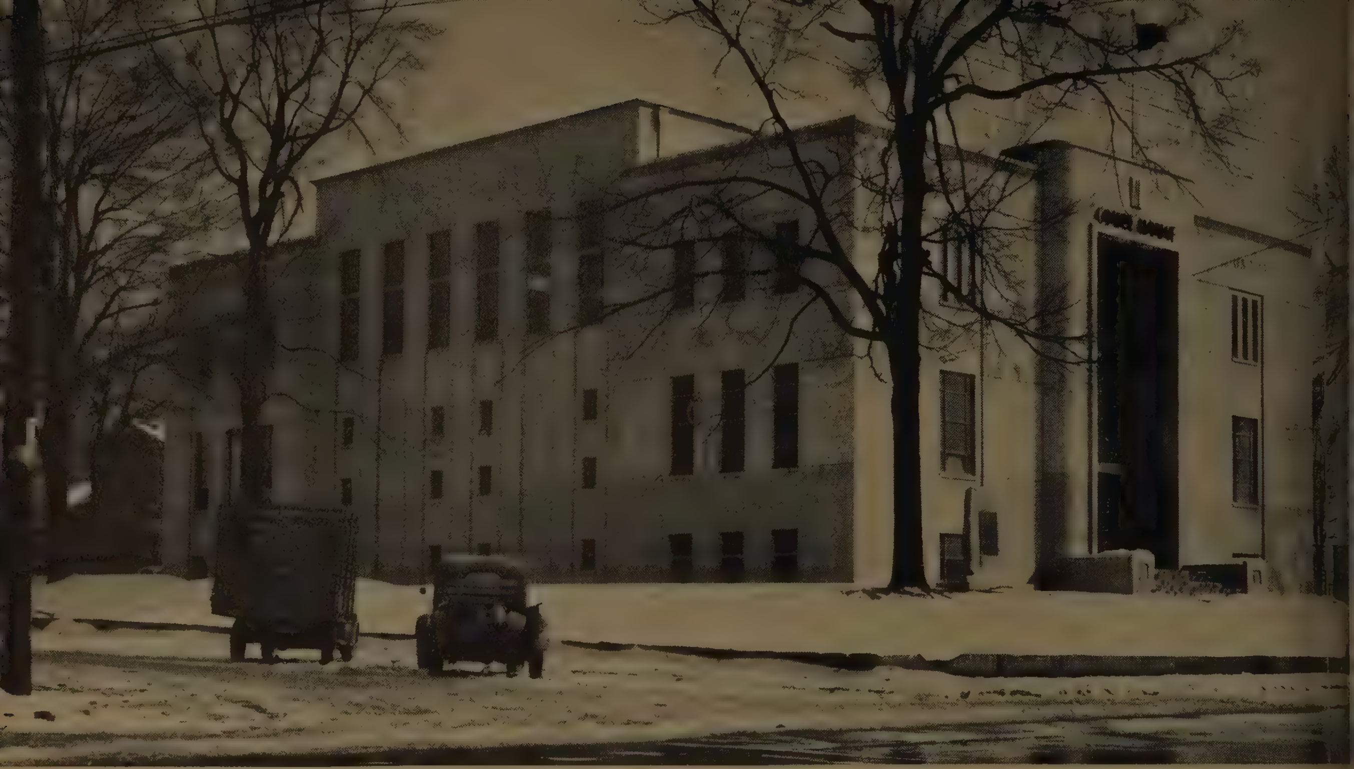
Construction practices followed in the building of Lawrenceburg Armory were simple. Flat wall areas were formed against panels made of 1x6 boards, giving a vigorous texture which was desirable from the standpoint of appearance as well as economy. Curved areas at corners were formed against plywood bent to desired radius. Control joints were located in each window bay of the one-story portion and at third-sections of end walls of the high drill hall. Examination shows they have performed perfectly.

Lettering in the front wall of the drill hall is incised, made by nailing wood letters to form panels. The sharpness of the edges of this lettering and its uniform depth indicate the quality of the concrete and the care with which it was handled. Few of the laborers had done concrete work before. They learned quickly and produced gratifying results.

Had it not been for the prevailing circumstances, it is probable that all seven armories would have been built of architectural concrete. This by no means discredits the buildings of other materials; but under any normal condition it would be our recommendation that concrete be thoroughly considered for such structures. We would fully expect the results to be as good as with any material, and far better than could be produced with many.

Vigorous wall texture was due to the use of 1x6 formboards with rough-sawed surface against the concrete. Control joints were located at the center of each window opening and at third-points in the high drill hall wall. The incised lettering was made by nailing wood letters to the form sheathing.





New Ohio County (Ky.) Courthouse at Hartford, Ky., is the fourth structure to grace the public square of this old, historic town. The first two we bu under unusual circumstances. The third was razed to make way for this modern architectural concrete building. Walter Scott Roberts, of Owensboro, y., the architect. Westcott & Thornton, also of Owensboro, were engineers.

Ohio County Courthouse—Kentuck

By Walter Scott Roberts*, AIA

A NEW architectural concrete courthouse in Hartford, Ky., is the fourth courthouse to crown the little hill that forms the public square in this Ohio County town. The earliest of these buildings dates back to 1800, or eight years after Kentucky was admitted to the Union—a time when the country was wild and the citizens rough, and long rifles and short tempers made a courthouse highly essential to preservation of the peace.

Ohio County had very poor luck with its first two courthouse buildings, both being destroyed on very historical occasions to the accompaniment of considerable violence.

The first courthouse on the site was a two-story log affair which came to an untimely end in 1813 when it burned during a celebration over Commodore Perry's naval victory on Lake Erie. Local historians are somewhat hazy over details, but convey the impression that over-exub- ance was responsible for the inadvertent act of arson.

Second seat of justice was a frame building, erected 1815, which performed efficiently until 1864 when Co- federate Gen. H. B. Lyon led his raiders into town, storm the public square and set fire to the courthouse. The buil- ing was burning briskly when one of the bolder citize implored the raiders to spare the county records in t clerk's office, a one-story building adjacent to the cou house. This request was granted and the county's histori records preserved to this day may be seen for the askin.

The third courthouse, a two-story masonry structure, r- mained unmolested until 1940 when it was razed to ma way for the more commodious structure recently complete. The need for a new building was pressing since, for ma years, a number of county offices had been forced to occu buildings and other even less desirable quarters.

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*Owensboro, Ky.

his new building, modern in design and ample in size, made possible by passage of a county bond issue and VPA contribution of construction labor. The building h is 75x101 ft. in plan with 22,700 sq.ft. of floor space a volume of 323,602 cu.ft. was completed at a cost of t $135,000.

xterior walls of the building are 10 and 12 in. thick and formed against plywood as were also the interior bear- walls. Both faces of exterior walls as well as the interior ing walls are left exposed and show unusually striking d grain texture. Nonbearing partitions are plastered. oors are of beam and slab construction in first- and second-story areas. The slabs are 3½ in. thick and the and 16-in. deep beams with carefully beveled edges are sed throughout. Roof of the building is a 3-in. slab which is placed built-up roofing.

tmost care was taken at all times to insure a uniformly a quality concrete mix. Maximum allowable water con- was rigidly limited to 6¼ gal. per sack of cement. ce local sands were not of the best grading, a substitute about 25 per cent of artificial stone sand was made to rect deficiencies in the fine aggregate grading.

pecial attention was given to planning the interior, ch has 64 rooms, including corridors, stair wells, pas- es and vestibules. The ground floor area contains 28 ms, the first floor 16 and the second floor 20 rooms. The uit courtroom is located on the second floor and is 65 ft. in plan with a ceiling height of 19 ft. 6 in. It is a well-lighted, large, comfortable room of simple dignified appearance. Circulation from the courtroom to the anterooms is arranged so as to avoid confusion among people coming in and leaving the building.

The two entrances, front and rear, are at an intermediate level between the ground-floor and first-floor corridors which are of sufficient size to accommodate crowds on court days. Ample, well-lighted stairways at each entrance lead to the circuit courtroom. Metal handrails were not obtainable due to war priorities and cast-in-place concrete handrails have been used with very satisfactory results.

The exterior was designed to accommodate placing the concrete and conserve plywood forms. A minimum of ornamental detail was used. The contrast between plain surfaces and well-balanced openings gives monumental effect.

Corridors, stair wells and treads are finished with terrazzo, while other rooms throughout the structure are finished with asphalt tile. Colors were selected to complement the concrete walls. Ceilings are of sound-absorbing material.

An adjunct of the courthouse is a new architectural concrete jail, located immediately east of the courthouse and facing the public square. A central heating plant is located in the jail to serve both buildings.

Courthouse and jail were designed by the writer. Westcott & Thornton, of Owensboro, were structural engineers.

The building superintendent, Robert C. McClellan, and the building committee were untiring in their efforts to carry out the design despite the exigencies of war. The completion is a tribute to community pride and cooperation.

Third of Ohio County's string of courthouses on the public square.

Vocational School for Meridian, Miss.

By L. L. Brasfield*

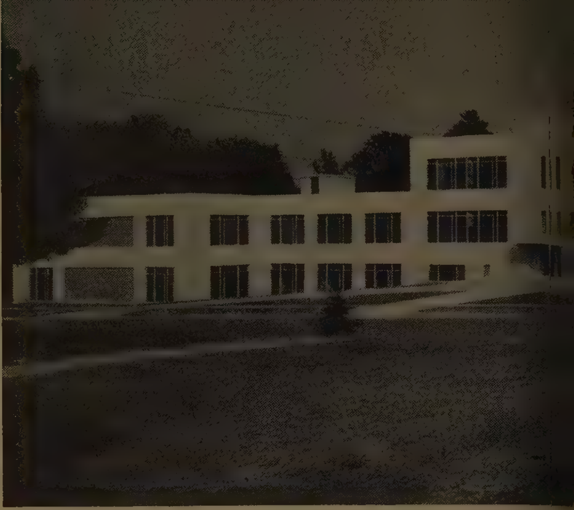
BACK in January, 1941, well before Pearl Harbor, the members of the board of education of Meridian, Miss., decided to add a unit to the school system that would serve two purposes: (1) provide a school plant for teaching vocational trades in Meridian, and (2) a school to aid in the national defense trades training program by providing youths with the skills enabling them to take jobs in the new war industries then beginning to operate in Mississippi and other parts of the South.

The board selected our firm to make a study of vocational training schools in the South and Midwest, and to prepare plans for a modern, firesafe building which would constitute a pleasing addition to the present Meridian High School-Junior College building group.

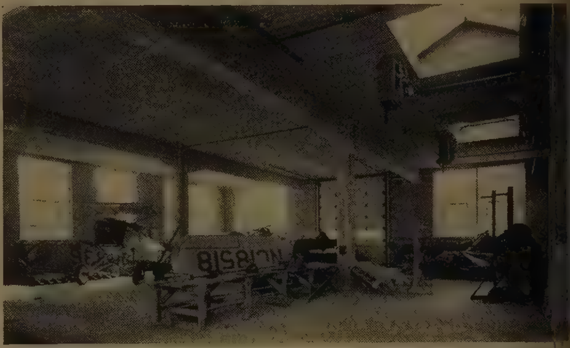
As a result of inspection trips and previous experience, the architects decided to design the building in architectural concrete, with concrete frame, floors and roof. This provided for two principal requirements—modern appearance and firesafety—and permitted wide latitude in both exterior and interior design features. The building was planned in a modified E-shape, three stories high in the main section. The three rear wings are two stories. The main or west elevation is 304 ft. long and the north and south elevations are 163 ft. and 143 ft. long, respectively. Volume of the building is 974,860 cu.ft.

In financing the work, aid was sought from the National Youth Administration. Altogether a sum of $435,000 was appropriated from the city of Meridian and NYA, $265,000 for the building and $170,000 for equipment. The contribution from NYA included labor.

Interior and exterior design of the building is strictly functional. Walls of shops and craft instruction rooms were left without plaster finish. Academic portions were finished with a ⅜-in. plaster coat, applied directly to the concrete.

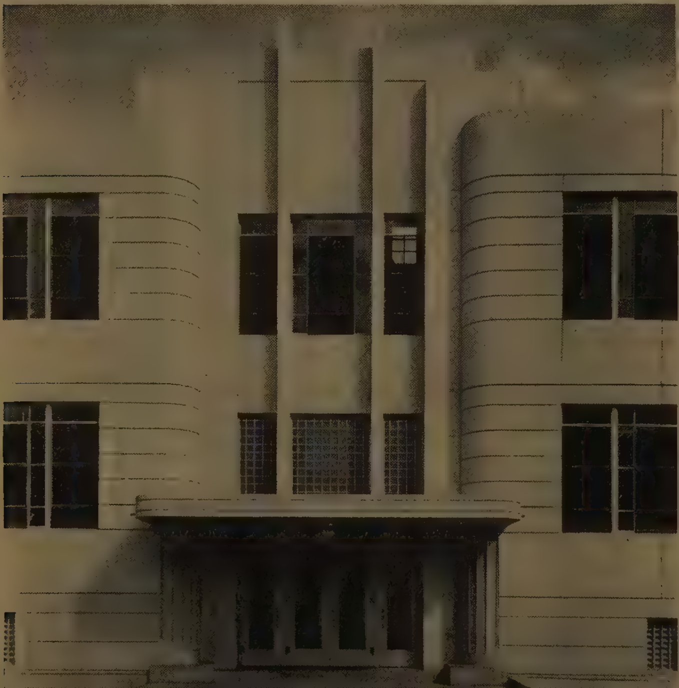


A combination academic and industrial structure housing a voc
The long main elevation is divided by expansion joints at both sides
the architects, with J. P. Yarbrough, associate architect. Gard



Walls of shops and craft rooms were left without plaster finish. Large windows and skylights provide ample illumination.

Main entrance shows sharpness of detail and indicates quality of design, mix and workmanship. This building was used as shop practice for the training of youthful construction workers. Several classes obtained excellent training in concrete work during construction of the school building.



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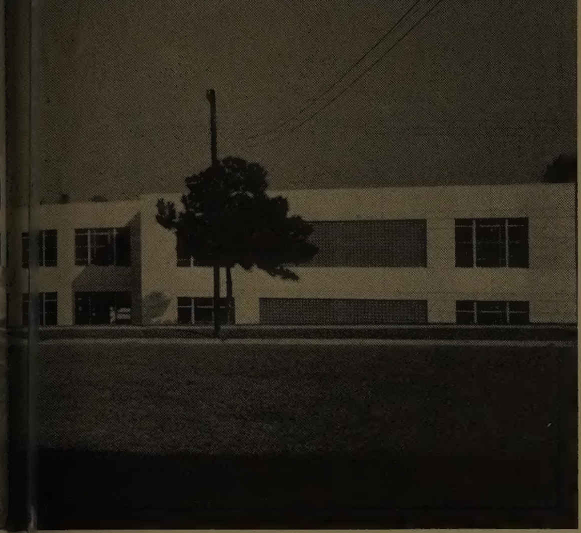
*Krouse & Brasfield, architects, Meridian.



ion to the Meridian, Miss., High School-Junior College group. in portion and wings. Krouse & Brasfield, of Meridian, were ural engineers. Built by National Youth Administration labor.

ceilings are exposed concrete as are the floors. Wall
kness is 12 in. below first-floor level and 10 in. above.
rs are 4 and 6 in. thick.

oundations for the north and south wings were designed
hat another story may be added in the future, and the
rior architectural design was arranged with this same
re addition in mind.

xpansion joints are located in the main section of the
ding on either side of the tower and between the main
ding section and the north and south wings. Control
ts are located at intervals of approx-
tely 20 ft. These control joints have
tioned well since the opening of the
ding in September, 1942. Very little
ement has been perceptible in the
ansion joints but they have undoubt-
aided in relieving stresses where
mass and direction of the building
nge.

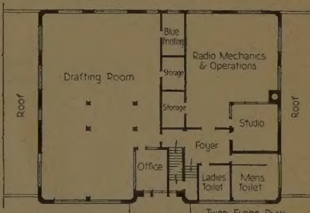
ll shops are grouped so that related
es classes are adjacent to each other.
ilities for both boys and girls are
vided because of the large number
vomen who are participating in war
k and are obtaining industrial in-
ction at the trade school. Since the
t of the Meridian vocational unit
ut 40 per cent of the student body
been girls and young women.

teel sash was used for all windows
ept for the large areas of glass block
ch provide natural illumination in the shop portions. All interior partitions are of lightweight concrete masonry.

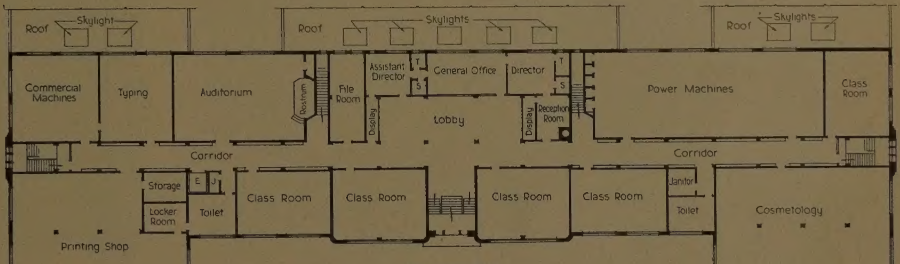
One interesting feature is that construction provided NYA an excellent training program. With the exception of squad leaders who acted as instructors, the entire construction crew was composed of young men between the ages of 18 and 25, all doing their first real building trades work. Squads were organized in each of the main trades: form building, steel setting, concrete mixing and placing, concrete finishing, plumbing, heating, electric work and other trades. Several squads were frequently assigned to the same work and those boys who seemed most apt were often grouped into new squads to learn advanced skills. By the end of the construction period, several complete classes of building trades had been completed, and these lads went directly into construction of war buildings which was at its height throughout the South by the fall of 1942.

How well these student builders learned their trades is evidenced in the accompanying photographs which show a professionally finished structure of excellent appearance.

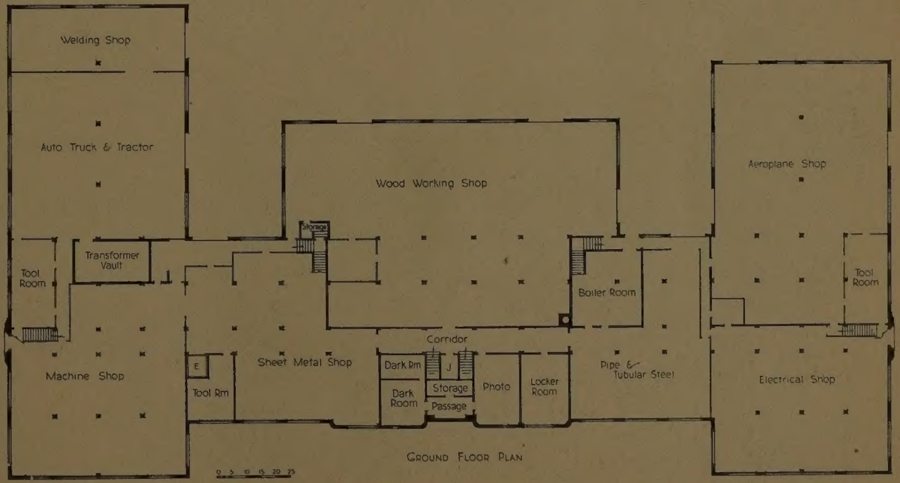
Gardner & Howe, of Memphis, were structural engineers and J. P. Yarbrough, associate architect for the project. R. L. McLemore was construction superintendent for NYA. All plans were prepared with the sympathetic assistance of Dr. H. M. Ivey, superintendent of schools.



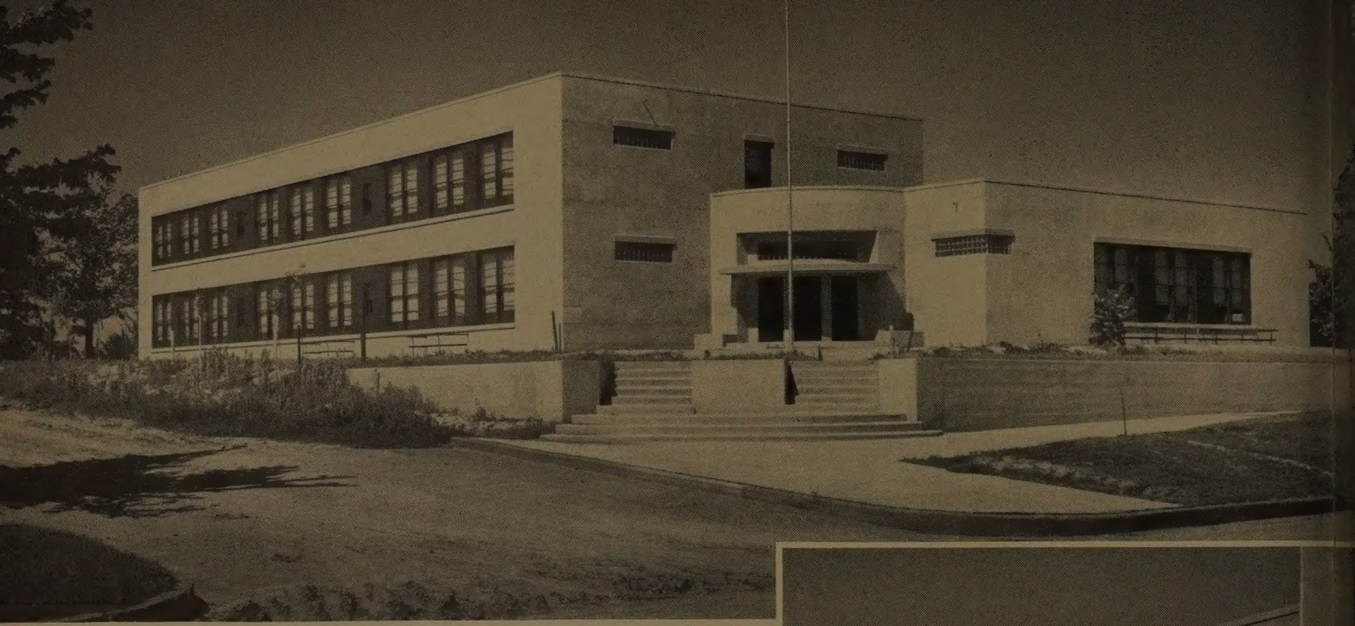
THIRD FLOOR PLAN



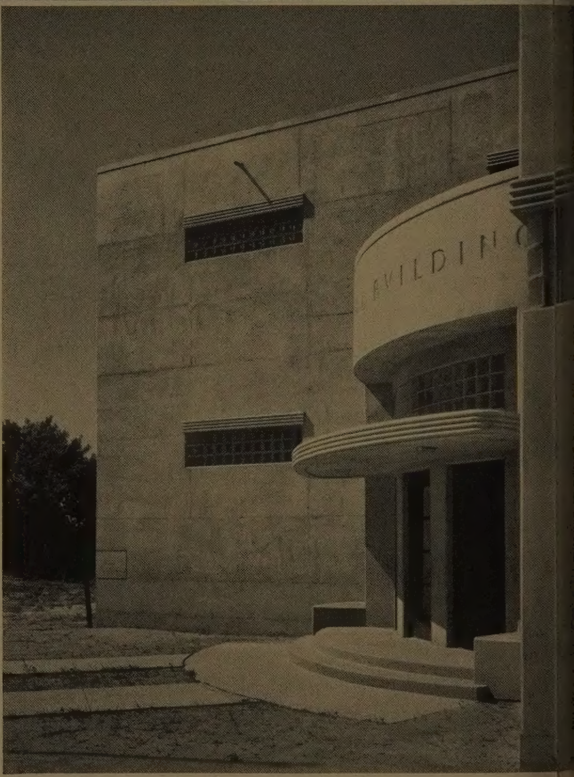
MAIN FLOOR PLAN



GROUND FLOOR PLAN



New architectural concrete school building for Plattsmouth, Neb., replaces a 60-year-old structure. The main entrance, located at the intersection of the one- and two-story wings, is reached by steps through the retaining wall extending along two sides of the lot. N. Bruce Hazen, of Lincoln, Neb., was the architect. Early work on the building was done by WPA. The structure was completed, however, by local labor paid for by special financing. Cost about $100,000.



School for Plattsmouth, Neb.

By N. Bruce Hazen*, Architect

The new school at Plattsmouth, Neb., was built to replace an old structure of 60 years which had long passed, both in appearance and utility, its best service to the community. This new building is architectural concrete, contemporary in design, and planned for as advanced educational practice as can be afforded in a town of this size.

Built on a corner lot on the side of a gently sloping hill, which necessitated a concrete retaining wall to hold the fill, the structure is L-shaped. The entrance, located in the angle formed by the two legs of the L, gives access to the kindergarten and the more advanced classroom portions which are kept separate. Concrete steps from street grade to the terrace are located at the corner of the lot and lead one directly to the curved corner entrance of the building.

The basement of the building is divided into several useful areas serving double purposes. The lunchroom, adjacent to the kitchen, is used as a playroom, and the visual education department is used also as a meeting room for the Parent Teachers Association, and has a separate outside entrance. On the first floor are four classrooms and on the second floor five classrooms.

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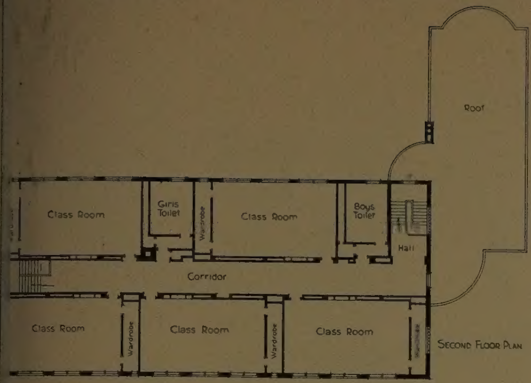
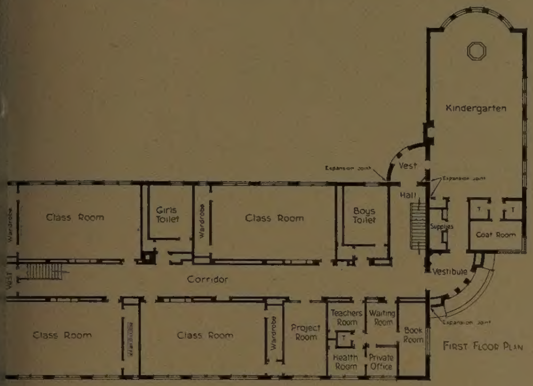
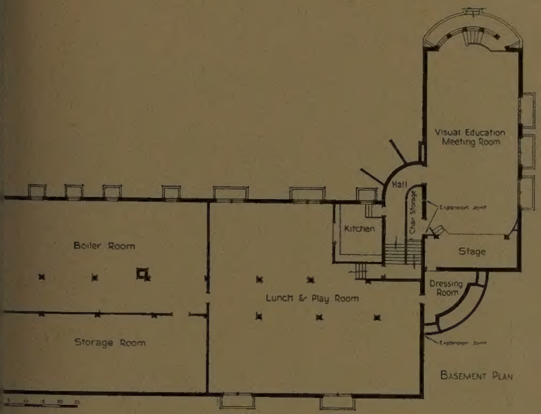
*Lincoln, Neb.







alls of the building are formed against plywood. The n entrance offered no special problem as such forms readily constructed of concrete simply by shaping the ns to the desired curvature. Wood letters were inserted he form faces to produce the Roman lettering over the rs. The only other purely decorative details are the zontally reeded lintel bands and the reeding around edge of the entrance canopy. Over the windows the ling was produced with milled wood forms with half-nd grooves. For the curved edge of the canopy the ling was produced with plaster waste molds. This de-; while simple and inexpensive to form, accents the izontal feeling of the design and adds a modest decorative ch to what are otherwise completely plain walls.

he two-story portion and the single-story unit to the right are divided by expansion joints located so that the one-story building and the two curved entranceways at front and rear, form a single structural unit.

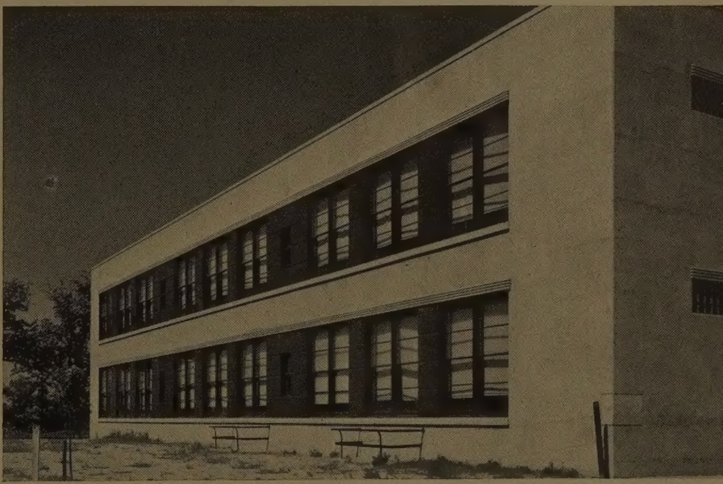
Control joints are located in all walls of the building at from 16- to 22-ft. intervals. They are functioning very well.

Exterior walls of the building were cleaned and the only other treatment was an application of dark blue paint directly to the concrete mullions. This color was added to accentuate the dark bands of the windows and provide greater contrast with the light wall areas.

Both first and second floors of the building are concrete of slab and beam construction, finished with asphalt tile. Wainscots in halls and corridors are salt-glazed tile. Interior walls are plastered and finished with color.

Lighting is most modern, being controlled by an electronic device which automatically turns on electric lights when daylight illumination falls below the intensity for good vision.

Plattsmouth School was started by WPA and carried on by these forces until the war depleted WPA ranks. The structure was then completed by local labor, paid by special financing. The total cost was approximately $100,000.



To provide added contrast the window mullions were painted a deep blue. This produces a strong horizontal effect along the west wall.

The kindergarten is located in the one-story portion of the building.

Decorative details on administration building at Jacksonville, Fla., Municipal Airport are an integral part of the architectural concrete structure designed by Jefferson D. Powell, Jacksonville architect.

Architectural concrete administration building at Washington National Airport. W. E. Reynolds, commissioner of public buildings. Louis A. Simon, supervising architect and Howard L. Cheney, consulting architect.

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Grand Rapids, Mich., Airport architectural concrete administration building, designed by Spencer Weber, Lansing, Mich., engineer.

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